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BULLETIN No. 66-62

QUALITY OF GROUND WATERS IN CALIFORNIA
1961 and 1962

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PART II
SOUTHERN CALIFORNIA

SEPTEMBER 1964

HUGO FISHER *Administrator* The Resources Agency	**EDMUND G. BROWN** *Governor* State of California	**WILLIAM E. WARNE** *Director* Department of Water Resources

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E OF CALIFORNIA—RESOURCES AGENCY
EDMUND G. BROWN, Governor

PARTMENT OF WATER RESOURCES
. BOX 388
RAMENTO

July 6, 1964

Honorable Edmund G. Brown, Governor,
and Members of the Legislature of
the State of California

State Water Quality Control Board

Regional Water Pollution Control Boards

Gentlemen:

Transmitted herewith is a copy of Bulletin No. 66-62 entitled "Quality of Ground Waters in California, 1961 and 1962, Part II, Southern California." This report covers the period January 1961 through December 1962. The quality of ground waters in Northern and Central California is discussed in Part I of this bulletin.

This is the seventh in a series of reports on the ground water quality monitoring program conducted by the Department of Water Resources. Under this program, water samples from representative wells in ground water basins throughout the State are collected and analyzed, and an annual evaluation of ground water quality conditions is made. Mineral and radiological analyses were made of ground water samples taken from approximately 160 wells in 16 monitored areas in Southern California.

Less than normal precipitation for the period January 1961 through December 1962, and the consequent greater utilization of ground water, intensified existing problems of impairment of ground water quality in the areas monitored in Southern California during 1961 and 1962. Sea-water intrusion, connate water encroachment and returns of waste water to the underground basins, continued to exhibit local effects of degradation on ground water quality.

Sincerely yours,

Director

ACKNOWLEDGMENT

The broad coverage of the statewide ground water quality monitoring program is made possible through the combined efforts of many public and private agencies. Although the program was initiated by the Department of Water Resources, the present scope of the program could not have been achieved without the valuable assistance of these other agencies. The generous and valuable assistance of the following agencies is gratefully acknowledged:

United States Geological Survey
California Department of Public Health, Bureau of Sanitary Engineering
California Disaster Office, Radiological Service
Long Beach City, Water Department
Los Angeles County Flood Control District
Orange County Air and Water Pollution Control Committee
Riverside County Flood Control and Water Conservation District
San Bernardino County Flood Control District
San Luis Obispo County Flood Control and Water Conservation District
Ventura County Department of Public Works

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor
HUGO FISHER, Administrator, The Resources Agency
WILLIAM E. WARNE, Director, Department of Water Resources
ALFRED R. GOLZE' Chief Engineer
JOHN R. TEERINK, Assistant Chief Engineer

SOUTHERN DISTRICT

James J. Doody	District Engineer
Herbert W. Greydanus	Chief, Planning Branch

This report was prepared under the direction of

David B. Willets	Chief, Water Quality Section
Mitchell L. Gould	Senior Engineer, W.R.

by

D. Francis Kostas	Junior Civil Engineer

assisted by

David Faessel	Student Engineer Trainee
Peter Fielding	Engineering Aid II
George Folgner	Student Engineer Trainee

THE GROUND WATER QUALITY MONITORING PROGRAM

Water development to meet the needs of California's phenomenal growth during the past decade has become one of the major problems facing the State. As the water resources of California are more fully utilized to meet the requirements imposed by the rapid expansion in population, agriculture, and industry, and as the number of suitable surface storage sites dwindles, water development planners are turning more and more to ground water supplies. Although the use of ground water has been, and is, one of the major factors contributing to the economy of the State, generally insufficient data are available regarding the mineral quality of such ground water supplies. The present widespread dependence upon ground water, together with the need for more intensive utilization of underground storage, requires constant vigilance coupled with remedial action, where necessary, to assure that the quality of ground water remains suitable for all intended uses.

In view of the extensive occurrence of ground water and its relatively slow rate of movement, determination of ground water quality and detection of changes therein require reliable long-term observation and records. Such data are essential to any program of quality control and are indispensable to formulation of plans for the coordinated operation of surface and underground storage. To help meet this need, a statewide program of observation and study of ground water quality was initiated by the Department of Water Resources in 1953 under the authority of Section 229 of the California Water Code.

Section 229 of the California Water Code directs that the department shall:

> "...investigate conditions of the quality of all waters within the State, including saline waters, coastal and inland, as related to all sources of pollution of whatever nature and shall report thereon to the Legislature and to the appropriate regional water pollution control board annually, and may recommend any steps which might be taken to improve or protect the quality of such waters."

Accordingly, the objectives of the ground water quality monitoring program are:

1. To provide information on the prevailing mineral quality of ground waters;
2. To provide a reliable, continuing check on quality of ground waters;
3. To secure data relating to significant changes in mineral quality, to evaluate the causes for these changes and to identify and delineate the areas affected by such changes;
4. To notify the appropriate regulatory agencies regarding the findings of the program.

Part II of this bulletin presents data on, and an evaluation of, ground water quality conditions in Southern California for the period January 1961 through December 1962. The area covered in Part II comprises all of Water Pollution Control Regions 4, 7, 8, and 9; Region 3 south of the San Antonio-Salinas River drainage boundary; and Region 6 south of the northern Mono Lake drainage boundary. Part I presents data on, and an evaluation of, ground water quality conditions in Region 3, north of the San Antonio-Salinas River drainage boundary; Region 6, north of the northern Mono Lake drainage boundary; and all of Regions 1, 2, and 5.

The areas of Southern California monitored during the 1961 and 1962 program are shown on Plate 1, "Monitored Areas, 1961 and 1962."

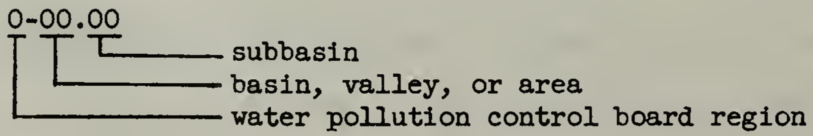
In establishing the areas included within the ground water quality monitoring program, requests and suggestions from regional water pollution control boards and other interested water agencies have been considered but are secondary to department needs. During 1961 and 1962, ground water samples taken from about 160 wells in 16 ground water basins in Southern California were collected and analyzed. The geographical location and areal extent of each of the monitored areas are indicated on Plate 1.

The selection of the individual wells samples is governed, to a large extent, by the availability of well logs. Sufficient information, such as depth, aquifers encountered, and depths of perforations is desirable for each sampled well to assure that data obtained are useful. Wells are added to, or deleted from the well monitoring network according to changing ground water conditions in an area. For example, a well showing prominent effects of sea-water intrusion is generally removed from productive use and, in many instances, sampling becomes impracticable. Accordingly, another well is substituted, if available.

Tests made of ground water quality include mineral and radiological determinations. The frequency of sampling, type of analysis, and density of the sampling network for mineral tests depend largely on the conditions in the area being monitored. In areas where water quality problems are known to exist and where extensive use is made of ground water supplies, samples are taken one or more times each year. In areas where limited use is made of ground waters, samples are taken periodically until sufficient data are collected to determine the water quality of the basin and thereafter as frequently as the land development and water use warrants.

Radioassays of well waters are made annually. In general, only the minimum number of wells necessary to show the areal extent of problems, if any, or to evaluate ground water conditions, are included in the radiological monitoring network.

In this report the monitored areas are grouped for purposes of discussion by water pollution control board regions, the boundaries of which, in most cases, coincide with those of the major drainage basins of the State. Within these regions the monitored areas are identified by basin numbers which provide quick data reference and permit machine processing of the data. The identifying basin numbers used in this report are based on a decimal system in the form 0-00.00. The number to the left of the dash refers to the water pollution control board region within which the basin is located. On the right of the dash the first digit or digits refer to the basin, valley, or area. Digits to the right of the decimal, if any, refer to the subbasin number as shown below.



It should be noted that a "monitored area" is defined as that portion of a ground water basin which lies generally within the limits of an established network of monitored wells. It does not necessarily include the entire ground water basin.

Wells selected for inclusion in the ground water quality monitoring network are assigned numbers by township, range, and section, based upon their location. The numbering system is the same as that utilized by the United States Geological Survey. Under this system each section is divided into 40-acre plots, which are lettered as follows:

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Wells are numbered within each of these 40-acre plots according to the order in which they are located. For example, a well having a number 3N/6E-24A2 is located in Township 3 North, Range 6 East, and in Section 24. It is further described as the second well identified in the 40-acre plot lettered A.

The information presented in the text that follows for each monitored area includes: a brief description of the area and the monitoring program; the occurrence, development, and beneficial uses of ground water; a discussion of major waste discharges; and an evaluation of any significant changes in ground water quality. A map of the monitored area shows monitored well locations and known area of ground water degradation.

Following the discussions of the monitored areas are two appendixes that present detailed information of procedures and analyses. Appendix A presents discussions of types of mineral analyses employed in the monitoring program, of laboratory methods and procedures used, and criteria for appraising the suitability of water for drinking, irrigation, and industrial uses. Appendix B presents tabulations of all mineral analyses of samples collected in this program during 1961 and 1962, and available data on ground water monitoring wells.

QUALITY OF GROUND WATERS
IN SOUTHERN CALIFORNIA, 1961 AND 1962

The mineral quality of ground water in Southern California during 1961 and 1962 reflected the much below normal rainfall in previous precipitation seasons. The improvement in Ground water quality noticeable in some basins following the more plentiful rainfall in the 1957-1958 season, was later reversed by quality changes induced by the dry weather.

The increased demand on ground water supplies due to lack of rain was accompanied by a general lowering of ground water levels. The lowered water tables, or pressure surfaces, reflected previously existing degradational effects on water quality exerted by sea-water intrusion, by inflow of poor quality waters from rocks and sediments adjacent to or underlying some valley fill areas, and by discharges of waste waters to areas susceptible to percolation of these wastes to the underlying ground water bodies. No new sources of degradation were discovered during 1961 and 1962.

Considerable quantities of imported water were used to augment ground water supplies in 1961 and 1962. The influence of the imported water on the ground water quality was for the most part indeterminate.

Central Coastal Region (No. 3)

The Central Coastal Region includes all of the coastal drainage areas from the southern boundary of Pescadero Creek Basin in San Mateo County to the southeastern boundary of Rincon Creek Basin in Ventura County as shown on Plate 1. It extends inland an average of about 50 miles to the crest of the coastal mountain ranges, and encompasses an area of approximately 11,000 square miles. The region is characterized by narrow coastal plains and coastal valleys with moderate slopes toward the ocean, backed by rugged mountain ranges paralleling the coast.

During the period January 1961 to December 1962, total precipitation was below normal and ground water levels remained low.

Valley areas in this region depend largely on ground water as a source of supply, and approximately 90 percent of the water requirements are met by ground water pumping. Nineteen ground water basins have been identified in this region, of which 18 are utilized intensively to supply irrigation water. Six ground water basins in this region have been included in the statewide ground water monitoring program. These areas, the number of monitored wells in each, and the sampling times are listed in the following tabulation.

Monitored area	Number of wells	Sampling time
Pajaro Valley (3-2)*		
Gilroy-Hollister Basin (3-3)*		
Salinas Valley (3-4)*		
Carmel Valley (3-7)*		
Santa Maria River Valley (3-12)	19	April and September
Cuyama River Valley (3-13)	14	July and September

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*These ground water basins are located in Northern and Central California and are discussed in Part I of this bulletin.

The quality of ground water in the monitored areas covered by Part II of this report showed no significant variations in 1961 and 1962 in comparison with previously existing conditions.

Santa Maria River Valley (3-12)

The Santa Maria River Valley is located along the San Luis Obispo and Santa Barbara county line; its boundaries are shown on Plate 2, "Santa Maria River Valley." The basin extends 28 miles inland from the ocean and includes an area of about 180 square miles. It is traversed by the Santa Maria and Sisquoc Rivers.

Ground Water Occurrence. The chief sources of ground water are the unconsolidated sediments of Pleistocene and Recent age; namely, the Paso Robles formation, the Orcutt formation, and the Recent alluvium. Santa Maria River Valley Basin is a free ground water basin except in the western portion, where sufficient fine-grained alluvium accumulated to form a confining cap. Waters overlying the confining cap are either perched or semiperched. Well yields are low near the perimeter of the valley, increasing toward the center. Yields from wells range from less than 100 to 3,000 gpm and average about 1,000 gpm.

Ground Water Development and Use. Ground water is extensively developed in Santa Maria River Valley and supplies all water requirements for irrigation, domestic, and industrial uses.

Major Waste Discharges. Brine wastes from oil production and effluents from sewage treatment plants constitute the major waste discharges in the Santa Maria Valley. Although almost all of the oil field brine wastes are discharged to the ocean by pipeline, the possibility of pollution of ground water by oil wastes through spillage, defective casings, or permeable sumps still remains. All of the sewage effluents in this area are discharged to ponds which are underlain by highly permeable materials. Although most of the effluent percolates, replenishing the ground water body, a small amount of effluent is diverted from the ponds for irrigation uses.

Monitoring Program. The monitoring program was initiated in this area in 1953 to detect changes in ground water quality which might result from surface disposal of oil industry wastes. Sampling well coverage originally encompassed practically all water wells in the areas of oil production, which are located in the eastern or upper end of the valley. In 1957, wells in the coastal region were added to monitor an area where sea-water intrusion may become a problem. Under a cooperative arrangement between the department and the United States Geological Survey initiated in 1957, the Geological Survey assumed the task of ground water sampling.

Evaluation of Water Quality. Analyses of ground water from Santa Maria River Valley wells in 1961 and 1962 indicated a nearly uniform character of water throughout the basin, predominantly calcium-magnesium sulfate in type. The waters were exceedingly hard, and sulfates usually greatly exceeded the recommended limit of 250 ppm for drinking water. Analyses of ground water from wells located in the coastal region of the Santa Maria River Valley Basin failed to show evidence of sea-water intrusion in 1960. There was, however, a rather widespread area of high nitrate ground waters in the central portion of the basin west of the City of Santa Maria. In the area around the City of Guadalupe, high values for total dissolved solids, sulfates, and total hardness were found. The ground waters are class 1 to class 2 for irrigation. Ranges for significant mineral constituents in 1961 and 1962 were as follows:

	High	Median	Low	
Total dissolved solids	1,524	584	326	ppm
Chlorides	166	69	28	ppm
Sulfates	689	353	27	ppm
Total hardness	919	205	82	ppm
Boron	0.37	0.13	0.09	ppm
Nitrates	46	15	0.5	ppm
Percent sodium	68	27	15	

Significant Water Quality Changes. None observed.

Cuyama River Valley (3-13)

The Cuyama Valley ground water basin is located along the Cuyama River in the southeast corner of San Luis Obispo County and the northeast corner of Santa Barbara County, as shown on Plate 3, "Cuyama River Valley." This basin includes portions of Kern and Ventura Counties also. The basin extends about 35 miles along the Cuyama River ranging in width from one to four miles and encompasses about 125 square miles.

Ground Water Occurrence. Unconsolidated clay, silt, and gravel, 3,000 to 4,000 feet in total thickness, compose the alluvium, terrace, and older continental deposits that supply nearly all the ground water in this area. The alluvium of Recent origin is most important in the western part of the basin, whereas the older deposits are important in the eastern portion; however, many wells are perforated in both. Except for small areas in the south central part, the ground waters are considered to be unconfined. Well yields range from less than 600 gpm to 4,400 gpm and average about 1,000 gpm. The yield of wells is least in the south central portion of the valley, while the higher yields are obtained from wells in the older continental deposits in the eastern portion of the basin.

Ground Water Development and Use. Ground water in the Cuyama Valley has been extensively developed for irrigation needs. More recently, minor development has taken place for relatively new oil industry and expanding domestic requirements. Ground water supplies most of the local needs.

Major Waste Discharges. Oil industry wastes constitute the largest disposal operation in Cuyama Valley. Although the majority of these wastes are discharged to injection wells, ground water could be polluted by spillage, defective casings, or improper sump disposal. Waters from many springs and seeps, although not waste discharges, must be considered as possible degradation to ground water quality, since available data indicate that they are much inferior in quality to ground waters obtained from wells.

Monitoring Program. The ground water monitoring program in Cuyama Valley was established in 1953 to detect possible impairment of ground water quality by oil industry wastes and mineralized springs, principally in the northern and northwestern part of the basin.

Evaluation of Water Quality. The character of the ground water is generally calcium sulfate or calcium-magnesium sulfate. The water is of inferior quality for domestic uses because it is excessively high in sulfates and total dissolved solids and is extremely hard. The ground waters are low to moderate in boron content and percent sodium. Although total mineral content is quite high, the water is used successfully for irrigation of a variety of crops. The analyses show the following ranges of important mineral constituents:

	High	Median	Low	
Total dissolved solids	4,974	2,346	812	ppm
Chlorides	180	105	12	ppm
Sulfates	2,707	1,106	494	ppm
Total hardness	2,313	1,014	58	ppm
Boron	0.69	0.28	0.10	ppm
Percent sodium	56	14	13	

Significant Water Quality Changes. None observed.

Los Angeles Region (No. 4)

The Los Angeles Region extends from the southeastern boundary of the watershed of Rincon Creek in Ventura County to the Los Angeles-Orange county boundary, a distance of about 100 miles. It extends inland from the Pacific Ocean to the crest of the coastal mountains, an average distance of 50 miles, and encompasses an area of about 4,600 square miles in Ventura and Los Angeles Counties, as shown on Plate 1. The region is characterized by broad coastal plains and inland valleys, backed by rugged mountainous topography. Ventura, Santa Clara, Los Angeles, and San Gabriel Rivers are the principal streams in this region.

The ground water supply of the region has been extensively developed, and in many areas has been exploited beyond the point of safe annual yield. Supplemental water is imported from Mono and Owens Valleys to the City of Los Angeles, and from the Colorado River to areas within The Metropolitan Water District of Southern California. Ground water, however, still supplies about 50 percent of the water beneficially used in this large and rapidly growing metropolitan area.

Sixteen ground water basins, and 53 subbasins, have been identified in the Los Angeles Region. The following five basins, subbasins, or areas, have conditions warranting their inclusion in the monitoring program:

Monitored area	Number of wells	Sampling time
Oxnard Plain Pressure Area (4-4.01)	17	Spring and fall
West Coast Basin (4-11.02)		
Santa Monica Bay area	9	Spring and fall
Howthorne-Gardena area	7	March and October
Torrance area	7	March and October

Monitored area	Number of wells	Sampling time
Central Basin Pressure Area (4-11.03) and Los Angeles Forebay Area (4-11.04)	4	June and December
Main San Gabriel Basin (4-13.01)	8	April and December

Precipitation for the 1961-1962 period was considerably below normal and ground water levels continued to be low. Along the coastal margins of the Oxnard Plain Basin in Ventura County, the ground water pressure surface sloped downward from sea level to elevations of 50 to 100 feet below sea level at points 5 to 10 miles inland. This landward slope made possible the continued intrusion of sea water into fresh ground water aquifers of these basins. In the West Coast Basin, efforts to halt sea-water intrusion and to artificially replenish underground reservoirs with imported water were reinforced by the organization of a water replenishment district covering the Los Angeles County Coastal Plain.

No new pollution sources were found in 1961 and 1962, and pollution effects were generally less noticeable than in previous years of record, due mainly to local governmental control of industrial waste disposal practices in the past few years.

Oxnard Plain Pressure Area (4-4.Cl)

The Oxnard Plain Basin underlies a gently sloping plain, roughly triangular in shape, comprising about 73 square miles of the coastal portion of Ventura County. The basin borders the Pacific Ocean for a distance of about 16 miles and is bounded on the north by the Santa Clara River, and on the southeast by foothills of the Santa Monica Mountains; its boundaries are shown on Plate 4, "Oxnard Plain Pressure Area."

Ground Water Occurrence. Continental and marine sediments are the chief sources of ground water in this area, however, a few wells are supplied from fractured Tertiary volcanic rocks. The main water-bearing zones from the shallowest downward are the Oxnard, the Mugu, the Hueneme, and the Fox Canyon aquifers. All of these aquifers are believed to be open to the sea. Along the coastal portion of the basin, the aquifers are confined and form a pressure area. A semiperched ground water body, consisting chiefly of poor quality return irrigation water, exists in the western portion of the basin near Oxnard. The yield of wells in the Oxnard Plain Basin ranges from 900 to 1,100 gpm.

Ground Water Development and Uses. Ground water has been extensively developed to the point of serious overdraft. It is the primary water supply for irrigation, municipal, and industrial uses in the area.

Major Waste Discharges. The major waste discharges in the Oxnard Plain Basin are domestic sewage, industrial waste waters, and minor quantities of oil field wastes. These wastes are discharged to the ocean by pipeline after treatment in sewage treatment plants located in Oxnard and Port Hueneme.

Monitoring Program. The monitoring program in the Oxnard Plain Pressure Area was initiated in 1953 to observe changes in the quality of ground water produced by, and to determine the extent of, sea-water intrusion in the vicinity of Port Hueneme and Point Mugu.

Evaluation of Water Quality. Permeable deposits overlying the clay cap which confines the Oxnard aquifer in the pressure area contain poor quality waters consisting chiefly of irrigation return water. The character is similar to that in deeper aquifers, but high concentrations of soluble minerals render it unsuitable for domestic use, and class 2 or 3 for irrigation use. A drainage system has been constructed to discharge this water to the ocean. There is no discernible evidence at present that these perched waters have penetrated the deeper aquifers, but this may possibly occur if ground water levels become sufficiently low.

Available analyses show a similarity in character of waters in the Oxnard, Mugu, Hueneme, and Fox Canyon aquifers. The character is calcium to calcium-sodium sulfate and sulfate-bicarbonate usually, and calcium-magnesium sulfate in limited areas. In areas of sea-water intrusion, the character of the waters is sodium chloride.

Ground waters from the Fox Canyon aquifer are slightly higher in total dissolved solids than Oxnard aquifer waters. However, boron is higher in the Oxnard aquifer waters, placing them in class 2 for irrigation use. The ground waters of all these deeper aquifers generally exceed drinking water standards for total dissolved solids and sulfate content. Electrical conductance data place these waters predominantly in class 2 for irrigation use. In 1961 and 1962, the mineral content of waters in the forebay area and contiguous portions of the pressure area was greater than that of waters in the main part of the basin. This higher mineral content in the forebay areas reflected the surface recharge water quality.

In general, the ground waters in the Oxnard Plain area are suitable for irrigation of most crops except those sensitive to boron. The waters are very hard and considered marginal for domestic use because of their high sulfate content.

The analyses of the ground waters of the Oxnard Plain Pressure Area show the following ranges for important mineral constituents:

	High	Median	Low	
Total dissolved solids	13,790	962	574	ppm
Chlorides	6,175	52	37	ppm
Sulfates	1,008	391	227	ppm
Total hardness	5,523	483	294	ppm
Boron	0.95	0.68	0.40	ppm
Percent sodium	55	30	16	

Significant Water Quality Changes. None observed.

West Coast Basin (4-11.02)

West Coast Basin is located in the southern part of Los Angeles County along the coast between the Cities of Santa Monica and Long Beach. It is about 19 miles long, has an average width of 9 miles, and includes an area of about 160 square miles. About 80 percent of the surface is a gently rolling, slightly eroded marine plain, while bordering highlands constitute the remainder. The boundaries of the basin are shown on Plate 5, "West Coast Basin."

Ground Water Occurrence.

The principal water-bearing deposits are of Pleistocene and Recent age and consist of alternating layers of relatively fine-grained and coarse-grained fluvial sediments. The coarse-grained layers yield ground water readily to wells and are the producing aquifers of the basin. These aquifers can conveniently be divided into an upper and lower group.

The upper group of aquifers consists of an area of semiperched ground water in the central portion of the basin and the Gaspur, Gardena, and Gage aquifers. The ground water production from this group is of diminishing importance because the water quality is generally marginal or unsuitable for established beneficial uses.

The lower group is composed of the Lynwood and Silverado aquifers. These aquifers contain ground water of good quality and continue to supply a large part of local water needs.

Along the Santa Monica Bay, both groups merge to form essentially one aquifer which outcrops in the floor of the bay. In this area sea-water intrusion of the fresh ground water supply has occurred.

Depths to the aquifers vary from 50 to 1,200 feet. Yield of wells ranges from 300 to 2,000 gpm, and averages about 500 gpm.

Ground Water Development and Use. Ground water is extensively developed in the West Coast Basin, supplying agricultural, industrial, and domestic requirements. Cultural development has changed over the last 20 years from typically agricultural to metropolitan and industrial. Petroleum production, oil refining, aircraft manufacture, and related industries are concentrated in the basin. Ground water supplies about 40 percent of the water requirements of the basin; the rest is provided by imported water.

Major Waste Discharges. The major waste discharges in the West Coast Basin are oil wastes from the large oil fields and refineries in the area, and industrial and domestic sewage. Although most of the oil wastes are discharged to the ocean by pipeline, the problem of possible degradation of ground water through defective casing, spillage, or use of sumps still exists. Industrial and domestic sewage is treated at sewage treatment plants and discharged to the ocean.

Monitoring Program. The sampling program in the West Coast Basin monitors the ground water quality in the area of sea-water intrusion along Santa Monica Bay and two areas where industrial waste discharges would have an effect on ground water quality, namely, the Hawthorne-Gardena area and the Torrance area. Each of these areas is discussed separately in the presentation that follows.

Santa Monica Bay Area

The area monitored for sea-water intrusion borders the coastline of Santa Monica Bay. Wells selected for the monitoring program are situated in an area of about 15 square miles, from the northerly limit of the City of El Segundo southward to the vicinity of the City of Redondo Beach. Obtaining water samples from the same well over a long period of time has presented a problem in this area because soon after a well shows prominent effects of salt-water intrusion, it is generally removed from use by the owner, and routine sampling becomes impractical. When available, other wells are substituted for those removed from the sampling program. Samples of the water from wells without pumps are obtained periodically by Department of Water Resources and Los Angeles County Flood Control District mobile pumping equipment.

Evaluation of Water Quality. The mineral character of the ground water not influenced by sea-water intrusion is sodium bicarbonate to calcium bicarbonate. In the area of sea-water intrusion, the character of water shifts to sodium chloride. The water is hard to very hard and is low in sulfates generally. The lower total dissolved solids values are found outside of the sea-water intruded area. The analyses of the ground water of the Santa Monica Bay area for 1961 and 1962 show the following ranges for important mineral constituents:

	High	Median	Low	
Total dissolved solids	22,080	743	450	ppm
Chlorides	12,500	156	76	ppm
Sulfates	1,520	76	2.5	ppm
Total hardness	6,390	247	105	ppm
Percent sodium	70	37	27	ppm

Significant Water Quality Changes. None observed.

Hawthorne-Gardena Area

This monitored area extends approximately from Florence Avenue, north of the City of Inglewood, to 190th Street on the south, and from Sepulveda Boulevard on the west to Alameda Boulevard on the east. Ground water monitoring in the Hawthorne-Gardena area was initiated in 1953 as a result of a recommendation by a committee of interested local governmental units which conducted a survey of industrial waste disposal in this area under the direction of the Los Angeles Regional Water Pollution Control Board. The monitoring program is designed to detect any degradation of ground water quality which may result from past or present oil well, oil refinery and other industrial wastes discharged to surface channels and sumps.

Evaluation of Water Quality. The character of the ground water varies from calcium bicarbonate to calcium-sodium bicarbonate chloride. The ground water in the deeper zones is moderately hard to very hard, but is suitable for prevailing beneficial uses.

Significant Water Quality Changes. None observed.

Torrance Area

This monitored area in the West Coast Basin occupies approximately 30 square miles of the coastal plain and is bordered by 190th Street on the north, Pacific Coast Highway on the south, Main Street on the east, and Santa Monica Bay on the west. The monitoring program in this area was instituted at the recommendation of the Los Angeles Regional

Water Pollution Board following a survey in industrial waste discharges in 1953 and 1954. Ground water quality is monitored to follow the effects resulting from the past and present disposal of industrial wastes.

Evaluation of Water Quality. The mineral character of ground water from the Torrance area varies widely. Sodium and calcium are predominant cations, while bicarbonate and sulphate predominate among the anions. Waters in the Gardena aquifer show evidences of local impairment in the eastern part of the monitored area. The ground waters are generally moderately hard to very hard, and range from good to unsuitable for municipal and industrial uses. Ground waters in the deeper aquifers range from good to excellent quality for all beneficial uses.

In 1961 and 1962, analyses of ground waters of the Torrance area show the following ranges for important mineral constituents:

	High	Median	Low	
Total dissolved solids	1,311	791	605	ppm
Chlorides	225	98.5	52	ppm
Sulfates	442	224	1.0	ppm
Total hardness	652	152.5	92	ppm
Percent sodium	51	44	35	

Significant Water Quality Changes. Total dissolved solids and sulfates showed a definite increase. The cause is indeterminate at this time.

Central Basin Pressure Area (4-11.03) and Los Angeles Forebay Area (4-11.04)

The Central Basin is located in the south central portion of Los Angeles County. It is bounded by the Hollywood Basin on the north, the West Coast Basin on the west, the Anaheim Basin of Orange County on the south, and a series of low hills on the east. The Central Basin is subdivided into four areas: the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area, and the Central Basin Pressure Area. Of these four areas, the ground water monitoring program is conducted in portions of the Central Basin Pressure Area (4-11.03) and the Los Angeles Forebay Area (4-11.04) only. The monitored area is shown on Plate 6, "Central Basin Pressure Area and Los Angeles Forebay Area."

Except for the portion of the basin abutting the hills on the northeast, the predominant topography of the two areas monitored is that of a gently sloping plain, extending approximately 25 miles from the Los Angeles-Orange county line northwesterly to the vicinity of the Santa Monica Mountains. It has an average width of 12 miles and encompasses an area of about 220 square miles.

Ground Water Occurrence. The principal sources of ground water are the Recent and Pleistocene sediments. Ground water in the Los Angeles Forebay Area is unconfined. Clay strata overlying the aquifers in the Central Basin Pressure Area confine ground waters under hydrostatic pressure. Wells yield up to 5,000 gallons per minute but average about 500 gallons per minute.

Ground Water Development and Use. Ground water is extensively developed to supply municipal and industrial requirements. There is little irrigated agriculture remaining in the Central Basin.

Major Waste Discharges. Industrial waste waters and domestic sewage constitute the major waste discharges. These wastes are discharged to the ocean by sewers after treatment at a local sewage treatment plant. Disposal of brine wastes to injection wells from a few small oil fields in the area present a minor threat of ground water pollution.

Monitoring Program. The ground water monitoring program is concerned with an area of about 30 square miles, southwest of the industrial complex centered in the City of Vernon, and overlying portions of both the Los Angeles Forebay Area and Central Basin Pressure Area.

An investigation of industrial waste pollution of ground water in this area was conducted by the Los Angeles Regional Water Pollution Control Board in 1950. Water from 33 wells was found to exhibit hydrocarbon tastes and odors, increased mineralization, or both. Although the findings in the investigation were not conclusive, the data indicated that the source of pollution was industrial wastes discharged to the ground surface which gravitated to the water-bearing zones directly, or possibly through defective or nonused wells. Monitoring was instituted to observe the duration of the pollution in ground waters and to detect and follow quality changes that might occur in deeper aquifers as a result of downward migration of the affected waters.

Evaluation of Water Quality. Mineral analyses of ground water samples obtained over the past seven years show that the character of ground water ranged from calcium bicarbonate to calcium bicarbonate-sulfate. Analyses of samples collected from monitoring wells in 1961 and 1962 showed the following ranges for important mineral constituents:

	High	Median	Low
Total dissolved solids	576	470	400 ppm
Chlorides	62	41	30 ppm
Total hardness	355	283	254 ppm
Sulfates	181	107	71 ppm
Percent sodium	42	26	25

Although hydrocarbon tastes and odors have been noted at times, the water is generally suitable for prevailing beneficial uses.

Significant Water Quality Changes. None observed.

Main San Gabriel Basin (4-13.01)

The Main San Gabriel Basin is an interior valley in the east central portion of Los Angeles County; its boundaries are shown on Plate 7, "Main San Gabriel Basin." The basin occupies the valley between the San Gabriel Mountains on the north, the San Jose and the Puente Hills on the east and southwest, and the Merced Hills on the south and west. The valley floor slopes gently to the southwest. The basin averages about nine miles in width and encompasses an area of approximately 115 square miles.

Ground Water Occurrence. The principal source of ground water is alluvium deposited from Pleistocene to Recent times. In general, the aquifer is a thick section of unconsolidated sediments and the ground water is unconfined. Wells yield up to 5,500 gallons per minute and average about 1,000 gallons per minute.

Ground Water Development and Use. The ground water in the Main San Gabriel Basin has been extensively developed and supplies all the agricultural, domestic, and industrial requirements. The area has changed during the last 15 years from mainly agricultural to metropolitan and industrial in nature. Water levels have dropped substantially in recent years due to a protracted period of low precipitation and reduced recharge.

Major Waste Discharges. The major waste discharges are industrial and sewage wastes, and domestic rubbish and garbage. Most of the domestic and industrial sewage wastes are collected by the sewerage system of the County Sanitation Districts of Los Angeles County and discharged to the ocean. Disposal of rubbish and garbage in a number of abandoned gravel pits excavated in the highly permeable alluvium of the basin is widely practiced. Past disposal practices have posed the threat of ground water pollution if the decomposable refuse should be saturated by high water levels or percolation of applied water as rainfall. Joint efforts by this department and regional water pollution control boards are being made to determine the effects of gaseous and liquid products of decomposition on underlying ground waters.

Monitoring Program. The monitoring program was instituted in 1953 to investigate the influence on ground water quality of a rapid change from agricultural use of land to urban and suburban development. A lag in providing waste disposal facilities for the rapidly growing population presented a threat to ground water quality. It now appears that one of greatest hazards is the potential pollution of ground water by the disposal of decomposable refuse in the alluvium of the basin.

Evaluation of Water Quality. Mineral analyses of ground water samples show that the character of the ground water is predominantly calcium bicarbonate. Although the waters are hard to very hard, they are generally suitable for prevailing beneficial uses.

In 1961 and 1962 the ranges for significant mineral constituents were:

	High	Median	Low
Total dissolved solids	754	386	285 ppm
Chlorides	92	46	12 ppm
Nitrates	46	25	14 ppm
Total hardness	461	335	178 ppm
Sulfates	220	39	10 ppm

Significant Water Quality Changes. None observed.

Lahontan Region (No. 6)

The Lahontan Region is a part of the Great Basin of the Western United States. It comprises all drainage basins in California east of the Central Valley and South Coastal areas, except those basins in the southwestern part of the State which drain to the Salton Sea or the Colorado River.

The region has an area of approximately 33,000 square miles and extends about 500 miles along the eastern boundary of the State from the Oregon state line on the north to the San Bernardino and San Gabriel Mountains on the south. It is bounded on the west by the Sierra Nevada Range and the Tehachapi Mountains, and on the east by the California-Nevada state line. The region encompasses all of Mono and Inyo Counties and parts of Kern, Los Angeles and San Bernardino Counties, as shown on Plate 1.

The names of the monitored areas, the number of monitored wells in each basin sampled in 1961 and 1962, and the time of sampling are listed in the following tabulation.

Monitored Area	Number of Wells Sampled	Sampling Time
Surprise Valley (6-1)*		July
Madeline Plains (6-2)*		August
Honey Lake Valley (6-4)*		August
South Tahoe Valley (6-5.01)*		September
North Tahoe Valley (6-5.02)*		September
Carson Valley (6-6)*		September
Truckee Valley (6-67)*		September
Topaz Valley (6-7)*		September
Bridgeport Valley (6-8)*		September
Lower Mojave River Valley (6-40) Barstow to Yermo	11	March, August, and December

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*These ground water basins are located in Northern California and will be discussed in Part I of this bulletin.

Precipitation varies from sparse to abundant in various parts of the region due to extreme differences in latitude and elevation. Usually precipitation occurs in the winter season, but summer storms of cloudburst proportions occasionally arise. The period 1961-62 saw normal precipitation for most areas.

All basins in this region drain interiorly. Several very large dry lakes are found in basin depressions in the southern desert portion. Twelve hydrographic provinces comprise the main watershed areas, and 60 ground water basins have been identified in the region.

Ground water provides most of the water used in the southern portion of the Lahontan Region, and where it is extensively developed, the ground water levels are falling. Use of water is shifting slightly in emphasis from irrigation to municipal and industrial uses. Boron mining companies which produce 80 percent of the world's supply of boron, are large users of ground water in Region 6. In Antelope Valley, military bases and aircraft and missile production form a substantial part of the economy. However, considerable areas of irrigated agriculture are still found there as well as in Fremont Valley and along the Mojave River.

Because of taste, odor, and foaming problems, the ground water monitoring program for the Lahontan Region is concentrated in the Lower Mojave River Valley between Barstow and Yermo. In this area, 11 wells are sampled three times a year, in March, August, and December.

Lower Mojave River Valley (6-40), Barstow to Yermo

Lower Mojave River Valley extends from the river narrows near Barstow 25 miles eastward along the river channel as shown on Plate 8, "Lower Mojave River Valley-Barstow to Yermo." The basin is bounded on the north by hills that rise abruptly along the southern extent of the Waterman Thrust fault. The southern boundary is a ridge with a maximum elevation of 3,130 feet composed of a thick deposit of Pleistocene alluvium. The eastern limit of the basin is formed by a complex of interbedded volcanic and sedimentary rocks that rise abruptly from the river's floodplain along an erosional escarpment. The basin varies in width from two to seven miles, and encompasses about 160 square miles.

Ground Water Occurrence. The upper portion of the Lower Mojave River ground water basin is a narrow and shallow deposit of river alluvium adjacent to and overlying nonwater-bearing rocks. The base of the Recent alluvium is about 200 feet below the ground surface. A few wells are deeper and produce some water from the underlying and adjacent older alluvium. The aquifers are unconfined. Ground water near the river is generally found within 20 feet from the surface, and seasonal variations are usually less than 20 feet.

Ground Water Development and Use. Ground water currently supplies all prevailing beneficial uses. Ground water is used for domestic and municipal, industrial, and irrigation purposes. Military bases and railroad repair shops are large industrial users.

Major Waste Discharges. Major waste discharges are domestic sewage from the City of Barstow and the military establishments, and industrial wastes in the vicinity of Barstow and Daggett. The sewage effluent from the Barstow sewage treatment plant is used for irrigation, and overflow is discharged to the Mojave River channel. Industrial waste from railroad shops and yards is treated in settling and skimming ponds, and the effluent is discharged to the river channel.

Significant quantities of synthetic detergents, petroleum products, phenols, hexavalent chromium, and relatively high fluoride and boron concentrations have been identified in these waste waters at various times.

Monitoring Program. Complaints of tastes and odors in well waters in the vicinity of Barstow prompted an investigation conducted by the State Division of Water Resources in 1951 and 1952, at the request of the Lahontan Regional Water Pollution Control Board. Although no evidence of pollution was found in the investigation, the monitoring program was established in 1954 to detect possible pollution of ground water supplies by sewage and industrial waste discharges into the Mojave River channel, or degradation by inflow of poor quality ground water from the older alluvium of the foothills on the south.

In 1961 and 1962, sampling was intensified to obtain additional data for a joint report of the board and the Department of Water Resources. The State Department of Public Health conducted studies of taste and odor problems in the investigation, and the Bureau of Sanitary Engineering made sanitary surveys in the area.

Areas where taste, odor, and foaming problems occurred extended for about 2-1/2 miles down the river from points of major waste discharges. The areas affected by these quality problems are shown on Plate 8.

Evaluation of Water Quality. The ground waters in the Recent alluvium of the river channel are sodium-calcium bicarbonate in character and are generally of good quality for prevailing beneficial uses, but fluoride is sometimes high in an area south of the river and east of Barstow.

Water in the older alluvium is predominantly sodium sulfate in type. The water often exceeds recommended limits for drinking water in total dissolved solids, and fluoride. It varies from hard to very hard water. It is usually class 2 and sometimes class 3 irrigation water, and is very often high in boron content.

Analyses of ground water samples obtained in 1961 and 1962 showed the following ranges for significant mineral constituents:

	High	Median	Low	
Total dissolved solids	940	474	217	ppm
Chlorides	129	51	18	ppm
Sulfates	220	82	24	ppm
Boron	1.3	.21	0.2	ppm
Nitrates	21.0	2.8	1.0	ppm
Total hardness	402	191	100	ppm
Percent sodium	64.3	46	37	

Significant Water Quality Changes. None observed.

Colorado River Basin Region (No. 7)

The Colorado River Basin Region is part of the California desert area. It is bounded on the north by a series of mountain ridges which separate it from the Mojave River watershed area, on the east by the California-Nevada state line and the Colorado River, on the south by the United States-Mexico International Boundary, and on the west by the Peninsular and San Jacinto Ranges and the San Bernardino Mountains. (See Plate 1).

The region encompasses all of Imperial County, and parts of San Bernardino, Riverside, and San Diego Counties. The region's average width is about 125 miles, its average length is about 150 miles, and it encompasses an area of about 19,370 square miles.

Topography of the region is characterized by a number of broad valleys and isolated mountain ranges. Most of the region drains to the Colorado River or to the Salton Sea. However, there are some basins that have interior drainage and contain dry lakes at their lowest elevations. Some of these dry lakes are several square miles in extent. In all, 46 ground water basins have been defined in this region.

Precipitation is meager in this region. Much of the rainfall occurs in the winter season, but summer storms of cloudburst proportions are frequent. In the 1961-62 period total precipitation was somewhat below normal and ground water levels continued to be low.

Ground water is used primarily for irrigation in several basins, although Colorado River water is imported for irrigation use in areas within the region. Some ground water is used for mining operations, for industrial uses, and for domestic uses in a number of desert resort communities.

The ground water monitoring program in the Colorado River Basin Region is at present limited to the southern portion of the Coachella Valley. In this area, 11 wells are sampled twice a year, in June and December.

Coachella Valley Basin (7-21) (South End)

The Coachella Valley is located in Riverside County in the northerly end of a great, elongated depression named the Salton Sink. It extends from the vicinity of Banning, 75 miles southeasterly to the Salton Sea, as shown on Plate 9, "Coachella Valley (South End)." The basin ranges in width from an average of about 3 miles in the northwesterly portion to approximately 20 miles at Salton Sea, and has an area of about 680 square miles. The Salton Sea and a large part of the area monitored are below sea level.

Ground Water Occurrence. The principal ground water producing sediments of Coachella Valley are unconsolidated alluvial debris consisting of gravel, sand, and silt. Fine-grained lakebed sediments cap the alluvium in the portion of the valley which lies between the City of Indio and the Salton Sea. In this area the major aquifers are confined. A shallow zone of semiperched water that overlies the principal aquifer contains predominantly an accumulation of irrigation return water and domestic waste water. The principal aquifer is replenished by ground water moving southeastward from the upper portion of the basin where ground water is unconfined. Water wells in the monitored area yield up to 2,000 gallons per minute.

Ground Water Development and Use. Extensive use of Colorado River water for irrigation since 1949 has limited the need for ground water for irrigation in the southern part of Coachella Valley. However, ground water is still used extensively for domestic and industrial purposes. Moderate to extensive development of ground water has occurred in the upper portion of the basin where ground water, supplemented by local surface water supplies, meets all current requirements.

Major Waste Discharges. Irrigation return water constitutes the major waste discharge in the area monitored. Minor discharges are sewage treatment plant effluents used locally for irrigation, or discharged to the channel of the Whitewater River. Sanitary landfill methods are used at several sites northwest of the City of Indio for disposal of garbage and domestic rubbish.

Monitoring Program. The ground water monitoring program in Coachella Valley was instituted in 1954 to detect any changes in ground water quality produced by imported water or possible impairment resulting from movement of degraded water from a shallow aquifer into a deeper aquifer through interconnections, aquifers, or through gravel-packed or improperly constructed or destroyed wells.

Evaluation of Water Quality. Ground water in the upper portion of the valley is predominantly calcium bicarbonate in character, good to excellent in quality, and low in percent sodium. Sodium sulfate waters occur locally in the vicinity of Desert Hot Springs and Garnet, are generally unsuitable for irrigation and usually exceed drinking water standards for sulfates, total dissolved solids, and fluoride. Ground waters in the vicinity of Indian Wells and Indio contain relatively high concentrations of nitrates from an undetermined source believed to be of natural origin. Occasionally, individual wells in this area exceed the nitrate content limit of 44 ppm recommended by the United States Public Health Service for drinking water standards.

The ground water character shifts toward sodium bicarbonate or sulfate in the southerly portion of the basin, and percent sodium ranges to more than 90 in ground water from wells near Salton Sea. The high percent sodium renders the water generally unsuitable for irrigation. Limited data indicate that water in the semiperched zone is highly mineralized due to the concentration of soluble minerals.

The higher values for total dissolved solids, chloride, sulfate, and total hardness concentrations seem to be located on the western side of the basin while the higher values for fluoride concentrations seem to be located on the eastern side of the basin, with the exception of the Desert Hot Springs subbasin where fluorides generally range from 8 to 10 ppm.

The analyses of ground water collected in 1961 and 1962 show the following ranges for significant constituents:

	High	Median		
Total dissolved solids	1,290	438	150	ppm
Chloride	416	38	7	ppm
Sulfate	329	86	23	ppm
Fluoride	6.3	0.6	0.4	ppm
Nitrates	13	5	0.6	ppm
Total hardness	691	97	10	ppm
Percent sodium	94	56	18	

Significant Water Quality Changes. None observed.

Santa Ana Region (No. 8)

The Santa Ana Region encompasses the entire drainage area of the Santa Ana River, as shown on Plate 1. It includes portions of San Bernardino, Riverside, and Orange Counties and has an area of approximately 2,800 square miles. Mountain ranges and hills bound the region on the northeast and southeast; the Pacific Ocean bounds it on the southwest, and the Los Angeles-Orange county line marks its northwestern boundary on the coastal plain. The Santa Ana River traverses the region in a southwesterly direction from the San Bernardino Mountains through the Upper Santa Ana Valley, across the Orange County Coastal Plain, and flows to the ocean near Newport Beach.

Nine ground water basins and 27 subbasins have been identified in the region, 3 of which have ground water quality problems that warrant their inclusion in the ground water monitoring program. The basins, the number of wells sampled in each, and the times of sampling are listed in the following tabulation.

Monitored Area	Number of Wells Sampled	Sampling Time
Anaheim Basin Pressure Area (8-1.01)	22	April and September
Chino Basin (8-2.01)	8	May, October and December
Bunker Hill Basin (8-2.06)	7	March and September

The native quality of ground water in the Upper Santa Ana Valley has been generally good to marginal. Poorer quality waters are found in a few limited areas. Records of mineral analyses indicate that a small but noticeable general increase in mineral concentrations has occurred in the valley in the past thirty years.

All waste water in the upper valley is discharged to the ground surface or to stream channels, and deep percolation of these waste waters constitutes involuntary reclamation and a source of recharge to ground water.

Surface and ground water outflow from the upper valley constitutes the principal natural source of recharge of ground water in the Orange County Coastal Plain. Most waste waters originating on the coastal plain are discharged to the ocean. Currently, Colorado River water is imported and spread along the Santa Ana River to recharge the ground water supplies; this source has provided the greatest amount of recharge water in recent years. Colorado River water is also distributed directly to the water users; however, ground water supplies about 80 percent of the water required for prevailing beneficial uses. Ground water levels remain below sea level along the coast in spite of the large ground water recharge program and sea water continues to invade the fresh ground water aquifers in the coastal plain.

The Santa Ana Region has been subject to below normal precipitation for a period of several years, broken only by above normal precipitation during the 1957-58 rainfall season. During the 1961-62 period, precipitation was below normal and ground water levels continued to be low.

Anaheim Basin Pressure Area (8-1.01)

Anaheim Basin Pressure Area, designated East Coastal Plain Pressure Area in previous reports of this series, is the seaward portion of the Orange County Coastal Plain. It extends from the Los Angeles county line on the northwest, 15 miles along the ocean front to the San Joaquin

Hills on the south. Its average inland width is about 10 miles, and its area is about 180 square miles. The monitored area is shown on Plate 10, "Anaheim Basin Pressure Area."

The topography is that of a low, gently sloping coastal plain, with a series of mesas along the coastal margin separated by gaps. Santa Ana River traverses the plain, and flows to the ocean through Santa Ana Gap just north of Newport Beach.

Ground Water Occurrence. The major water-bearing deposits include continental and marine sediments of Recent, Pleistocene, and Pliocene age. In these sediments several aquifers have been identified, one below another. At the surface there is an unconfined body of perched water consisting largely of irrigation return and other waste waters above the confining sediments of the deeper aquifers. In order of depth these principal aquifers are the Talbert aquifer of Recent age in Santa Ana Gap, and its correlative Bolsa aquifer in the northwesterly portion of the basin, ranging from about 50 feet to nearly 200 feet below the ground surface; the Alpha, Beta, Meadowlark and Lamb aquifers in the Pleistocene deposits, ranging in depth to about 600 feet; the Pleistocene Silverado aquifer which may reach depths exceeding 1,000 feet; and the "Pico Aquifer" of Pliocene age ranging to more than 3,000 feet. In the principal aquifers well yields range up to 2,000 gallons per minute.

The principal aquifers reach their greatest depths and thicknesses in the central portion of the basin, and extend to the ocean between and beneath the coastal mesas. Faults parallel to the coastline impede sea water inflow to the Pleistocene and Pliocene aquifers but not, however, to the Recent sediments.

Ground Water Development and Use. Ground water resources are extensively developed and production exceeds safe yield. Irrigated agriculture is the principal user of ground water, but rapid urban development is supplanting former agricultural lands. Water demand is increasing along with population growth. Imported water supplements ground water used for domestic and industrial purposes. Imported water is also spread in the Santa Ana Forebay area for replenishment of ground water.

Major Waste Discharges. Municipal wastes are collected by sewers and discharged to the ocean after treatment. A limited amount of sewage treatment plant effluent is used for irrigation. Brines produced by the petroleum industry are conveyed to the ocean by pipelines. Past disposal of oil brines to unlined earth sumps continues to influence ground water quality adversely in certain areas.

Monitoring Program. The monitoring program was instituted in 1953 to detect any extension of areas adversely affected by past oil field brine disposal and to report on the status of sea-water intrusion.

Evaluation of Water Quality. The mineral quality of native ground water is generally good to excellent. The character of water in the Recent and upper Pleistocene deposits is generally calcium bicarbonate. Percent sodium increases with depth to a marked degree in the lower Pleistocene and upper Pliocene deposits and the character of these waters is predominantly sodium bicarbonate.

Ranges of significant constituents from 1961 and 1962 analyses of ground water samples are:

	High	Median	Low	
Total dissolved solids	9,241	393	204	ppm
Chloride	3,190	21	7.9	ppm
Sulfate	165	31	0.2	ppm
Total hardness	302	273	50	ppm
Boron	0.46	.08	.02	ppm
Nitrates	3.9	3.7	0.00	ppm
Percent sodium	94	42	8.9	

Significant Water Quality Changes. None observed.

Chino Basin (8-2.01)

Chino Basin is located in the northwestern part of the Upper Santa Ana Valley. It is bounded by the San Gabriel Mountains on the north, Puente Hills on the west and southwest, Jurupa Mountains, Pedley Hills and Santa Ana River on the south, and subsurface barriers on the east. The basin is about 20 miles in length, 12 miles in width, and has an area of 237 square miles. As shown on Plate 11, "Chino Basin," the major portion of the Chino Basin is in San Bernardino County, its southern part is in Riverside County, and a small western fringe is in Los Angeles County.

The principal stream draining the Chino Basin is Chino Creek, which, together with several small streams, flows from the San Gabriel Mountains southward across the Chino Basin to the Santa Ana River. The Santa Ana River flows westerly along the southern margin of the basin.

Ground Water Occurrence. Ground water is obtained from the alluvial sediments in the basin. These sediments are of Recent and Pleistocene age and comprise, essentially, a single aquifer. In the upper portion of the valley the sediments consist chiefly of coarse gravels, and ground water is unconfined. Along the southwestern margin of the valley, ground water is confined under pressure by fine-grained floodplain sediments. Faults along the northeasterly boundary of the basin impede ground water inflow from adjacent basins. Wells yield from 135 gpm to more than 1,800 gpm.

Ground Water Development and Use. Development of ground water for agricultural and municipal uses is extensive, and a general condition of overdraft exists. The greatest amount is used by irrigated agriculture; however, the development of industrial and residential areas is increasing the demand on the ground water supply. Colorado River water is imported to supplement ground water supplies, and minor amounts of ground water are imported to or exported from the basin.

Major Waste Discharges. Domestic sewage and industrial waste water consisting of cooling water, food processing, and aircraft washing wastes, constitute the major waste discharges. Almost all waste waters in the basin are returned to the land for disposal or are used for irrigation. A substantial quantity of waste water is imported from the City of Riverside for irrigation, while a minor amount of waste water is exported to the Pomona tri-city sewage treatment plant in Pomona.

Hexavalent chromium and phenolic compounds in ground water have been traced to industrial waste disposal in the past. In 1961 and 1962, there were no indications that these constituents continued to present water quality problems.

Monitoring Program. The monitoring program was instituted in 1953 to detect possible impairment of ground water quality that could result from local disposal of domestic and industrial wastes, deep percolation of irrigation water, or use of water imported from the Colorado River. Wells for monitoring were selected from among wells located near significant waste discharges.

Evaluation of Water Quality. The native ground water quality was generally good to excellent for all prevailing beneficial uses. It was predominantly calcium-bicarbonate in character and moderately hard to very hard water. The waters were usually class 1 for irrigation use and acceptable for domestic use.

Harder waters containing greater concentrations of total dissolved solids are found in the southwestern portion of the basin, reflecting the high mineral content of runoff from Puente Hills.

Ranges for significant constituents in 1961 and 1962 are:

	High	Median	Low	
Total dissolved solids	703	256	211	ppm
Chloride	59	25	9	ppm
Nitrates	17	9.8	2.3	ppm
Sulfates	58	25	5	ppm
Total hardness	479	178	141	ppm
Percent sodium	24	20.5	20.1	

Significant Water Quality Changes. None observed.

Bunker Hill Basin (8-2.06)

The Bunker Hill Basin is situated in the Upper Santa Ana Valley, and extends 20 miles along the lower slopes of the San Bernardino Mountains which bound it on the north. Its average width is about 8 miles, and its area is about 92 square miles. The basin boundaries are shown on Plate 12, "Bunker Hill Basin."

The Santa Ana River and its tributary streams, including Warm Creek and City Creek, drain the basin. The river flows southwesterly across the basin and into the Colton Basin through the Colton Narrows southwest of the City of San Bernardino.

There are a number of faults in the basin which affect the movement of ground water. The most important of these is the San Jacinto fault which forms the southwestern boundary of the basin and controls subsurface outflow into the Colton Basin.

Ground Water Occurrence. Ground water is obtained from alluvial sediments of Recent and Pleistocene age which increase in thickness from zero at the foot of the mountains to about 1,000 feet in the southwestern portion. Near the mountains, coarse gravels represent the sediments in coalescing alluvial cones below the mountain canyons and free ground water conditions prevail. In the southwest portion, interbedded permeable and relatively impermeable strata create an area of confined ground water. Well yields range from 180 to 1,200 gpm.

Ground Water Development and Use. Ground water is developed extensively for agricultural and municipal needs; it provides for almost all local requirements and, in addition, large volumes are exported from the basin for use in adjacent areas.

Major Waste Discharges. Industrial wastes and domestic sewage constitute the major waste discharges. These wastes are discharged to the surface of the land or to stream channels.

Monitoring Program. The monitoring program was instituted in 1953 after an investigation by the Division of Water Resources found that waste discharges to the ground surface from a zeolite manufacturing plant near the City of San Bernardino, had adversely affected the ground water in the vicinity of the plant. Additional wells were later selected to monitor possible effects on ground water quality of discharges of waste waters to the land from a military air base and from the City of Redlands sewage treatment plant.

Evaluation of Water Quality. The character of ground water in the Bunker Hill Basin is predominantly calcium carbonate. It ranges from moderately hard to very hard water, but meets the standards recommended for mineral quality of drinking water, and is class 1 for irrigation use.

Ranges in concentrations of significant constituents in 1961 and 1962 are:

	High	Median	Low	
Total dissolved solids	972	284	148	ppm
Chlorides	28	14	8	ppm
Nitrates	25	9.3	2.9	ppm
Sulfates	424	27	6	ppm
Total hardness	2,045	790	376	ppm
Percent sodium	27	16.4	4	

Significant Water Quality Changes. None observed.

San Diego Region (No. 9)

The San Diego Region is the drainage area of streams flowing to the ocean between the City of Corona Del Mar in Orange County and the California-Mexico boundary. As shown on Plate 1, its boundaries include portions of Orange, Riverside, and San Diego Counties. It extends about 90 miles along the coast, its average width is about 45 miles, and its area is approximately 3,830 square miles. Most of its surface is mountainous or hilly except for a narrow coastal belt which slopes gently to the ocean and consists of a number of wave-cut terraces or mesas.

Ground water is found in the alluvium of the stream valleys or shallow alluvial fill of inland valleys. Fifty-four basins have been identified in the region; however, only three areas are included in the monitoring program. These three areas, the number of wells sampled in each, and the sampling times are listed in the following tabulation.

Monitored area	No. of wells	Sampling time
San Luis Rey Valley Mission Basin (9-7.01)	10	February and December
El Cajon Valley (9-16)	4	April and December
Tia Juana Valley Basin (9-19)	7	April and November

Precipitation during the 1961-1962 period was below normal. Both surface and underground water storage declined. Only small increases in average mineral content are indicated by analyses of ground water samples collected in 1961 and 1962 for ground waters in the San Luis Rey Valley Mission Basin or El Cajon Valley, but increases in the ranges of certain constituents showed that areal differences in quality within these basins were becoming more prominent. In the Tia Juana Valley Basin, a significant increase in average mineral content was shown by 1961 and 1962 ground water analyses data.

Increasing availability and distribution of Colorado River water in the coastal areas have minimized dependence on local ground water supplies. However, the ground water basins are gaining in importance as reservoirs for storage of excess import water as well as local water.

Mission Basin, San Luis Rey Valley (9-7.01)

The Mission Basin occupies the lower, or oceanward, end of the San Luis Rey River Valley in San Diego County. It extends from the ocean eight miles inland to the Bonsall Narrows. The width of the basin varies from one to two miles and its area is about six square miles. Its boundaries are shown on Plate 13, "San Luis Rey Valley, Mission Basin."

Ground Water Occurrence. Ground water is obtained primarily from the unconsolidated Recent and Pleistocene age alluvium along the San Luis Rey River Channel. The Recent alluvium, consisting of highly permeable sands and gravels, is chiefly unconfined, but near the ocean fine-grained sediments partially confine ground water in that area. The alluvium extends into the ocean and is open to intrusion by sea water.

Underlying and flanking the alluvium are deposits of marine sediments consisting of slightly cemented sands with occasional beds of shale or sandy shale. These marine deposits, which are only slightly permeable, contain connate water, poor in quality and high in chlorides.

The yield from wells in the alluvium range up to 2,180 gpm and average 500 gpm.

Ground Water Development and Use. Ground water is extensively developed for irrigation and about 25 percent of the municipal water requirements of the Cities of Oceanside and Carlsbad is obtained from wells in the basin. As a result of these developments, a condition of overdraft exists in the coastal portion of the basin.

Major Waste Discharges. The major waste discharge is the effluent from the City of Oceanside sewage treatment plant that is imported to the basin by pipeline and pumped into Whelan Lake. The effluent has been used for irrigation following oxidation treatment in Whelan Lake. In October 1958, ground water replenishment operations were begun by discharge of effluent from controlled outlets of the lake to spreading grounds in the San Luis Rey River Channel. This practice is still continued.

A significant waste discharge occurred from a sand and gravel washing operation which utilizes saline ground water. Formerly the waste was discharged at a point about 0.5 mile from the ocean into a single pond, but it is now discharged to the river channel in a spreading operation.

Monitoring Program. A ground water monitoring program was instituted in 1953 to study water quality effects resulting from sea-water intrusion, inflow of connate waters from marine sediments which underlie and flank the river alluvium, and salt balance.

Evaluation of Water Quality. The character of water in the basin is extremely variable. Calcium, sodium, bicarbonate, and chloride ions, predominate. The water is hard to very hard and high in total dissolved solids and chloride. The quality varies from good to unacceptable according to the drinking water standards and from class 2 to class 3 for irrigation. Analyses of ground water samples obtained in 1960 show the following ranges for significant mineral constituents:

	High	Median	Low
Total dissolved solids	4,730	1,706	940 ppm
Chlorides	1,840	466	249 ppm
Sulfates	639	244	78 ppm
Total hardness	2,045	790	376 ppm

Significant Water Quality Changes. Comparison of ground water analyses collected in 1961 and 1962 with those of 1960 show that ground water levels have declined and a general deterioration of quality has occurred. This is due in part to use and reuse of the ground water for irrigation, sea-water intrusion, and subnormal rainfall. Mission Basin received only 40 percent of its 50-year mean precipitation during 1960 and 1961.

El Cajon Valley (9-16)

The El Cajon Valley is a small basin in San Diego County about 10 miles east of the City of San Diego; its boundaries are shown on Plate 14, "El Cajon Valley." It is about 4 miles wide and 5 miles long, and has an area of about 22 square miles. The basin is bounded by low hills, and opens into San Diego River Valley. Forester Creek, which is tributary to San Diego River, drains the basin.

Ground Water Occurrence. Ground water is obtained principally from fractured and weathered zones in crystalline rocks. The Recent alluvium, which extends throughout the basin to depths of about 50 feet in some areas, is practically devoid of water. Sediments of Tertiary age yield very little water because their permeabilities are low. Well yields range from 1 to 300 gpm.

Ground Water Development and Use. Ground water development is extensive for domestic uses and to a lesser extent for agricultural and municipal supplies. Ground water is insufficient to meet demand, and Colorado River water is imported as a supplementary supply.

Major Waste Discharges. Effluent waste waters from two sewage treatment plants constitute the major waste discharges. The effluents are used for irrigation of parks and golf courses, and overflow is discharged to Forester Creek.

Monitoring Program. The monitoring program was initiated in 1953 to detect changes in ground water quality which might occur due to waste discharges, reuse of ground water, and importation of Colorado River water.

Evaluation of Water Quality. Ground water in the basin is predominantly sodium chloride or sodium-calcium chloride in character. The water is hard to very hard and high in total dissolved solids, chloride, and nitrate content. Total dissolved solids and chloride content generally exceed the accepted standards for drinking water. Analyses of ground water samples obtained in 1961 and 1962 show the following ranges for significant mineral constituents:

	High	Median	Low
Total dissolved solids	1,181	987	704 ppm
Chlorides	741	223	170 ppm
Nitrates	115	95	35 ppm
Sulfates	376	203	134 ppm
Total hardness	679	403	263 ppm
Percent sodium	51	50	47

Significant Water Quality Changes. None observed.

Tia Juana Valley Basin (9-19)

The Tia Juana Valley Basin is located on the California-Mexico boundary. It extends from the ocean in San Diego County inland along the Tia Juana River into Mexico. In California the basin is about 5 miles in length, averages 1.5 miles in width, and has an area of about 7 square miles. The basin boundaries are shown on Plate 15, "Tia Juana Valley Basin."

Ground Water Occurrence. Ground water is found in the alluvium which underlies the Tia Juana River channel. Hydrologic observations indicate the presence of a shallow water-bearing zone overlying a deeper zone in most of the monitored area near the ocean. Both zones are composed of alluvial sediments, but the low permeability of the upper zone gives the lower zone the characteristics of a pressure aquifer. Only one zone exists in the inland portion of the monitored area. Well yields range from 60 to 1,400 gallons per minute.

Ground Water Development and Use. Ground water is extensively developed for irrigation. Lesser amounts are used for municipal and domestic needs. Ground water supplies all uses in the basin.

Storage of ground water is highly responsive to recharge conditions and use. In periods of low rainfall, use of water lowers ground water levels to below sea level and induces intrusion of sea water.

Major Waste Discharges. The major waste discharge is sewage from the City of San Ysidro. After processing at the city's sewage treatment plant, it was conveyed to the ocean by pipeline in 1960. Irrigation waste water readily percolates to the ground water body.

Monitoring Program. The monitored area is the portion of the basin within California. It was included in the monitoring program in 1953 to follow the advance of salt-water intrusion noticed in coastal wells in 1947.

Evaluation of Water Quality. The ground water is sodium chloride in character and is very hard. It often exceeds the United States Public Health Service's "Recommended Maximum Limits" for drinking water in total dissolved solids, chlorides, sulfates and fluorides. It is very often class 2 irrigation water because of its high boron content. Although poor in mineral quality, it is used successfully for agricultural and domestic purposes. Degrading influences are attributed to sea-water intrusion, adverse salt balance, and inflow of connate water from older sediments.

Analyses of ground water samples collected in 1961 and 1962 show the following ranges for significant mineral constituents:

	High	Median	Low	
Total dissolved solids	23,642	7,543	2,137	ppm
Chlorides	9,006	2,039	652	ppm
Sulfates	1,337	712	313	ppm
Nitrates	69	19.0	16.0	
Total hardness	5,113	1,663	599	ppm
Boron	1.0	0.67	0.22	ppm
Percent sodium	68	59	50	

Significant Water Quality Changes. Comparison of analyses of ground water samples collected in 1961 and 1962 with those of 1960 shows a general increase in total dissolved solids and chloride throughout the basin. In 1961 and 1962 the Tia Juana Basin received only 40 percent of its 50-year mean precipitation and mineral concentrations continued their upward trend. Sea-water intrusion is a suspected source of impairment.

APPENDIX A

PROCEDURES AND CRITERIA

APPENDIX A

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Laboratory Methods and Procedures

Analytical methods used in the determination of the various constituents in the following tables conform generally to those presented in "Standard Methods for the Examination of Water, Sewage, and Industrial Wastes," a joint publication of the American Public Health Association, American Water Works Association, and the Federation of Sewage and Industrial Wastes Association, 11th Edition, 1960. Analytical procedures described in "Methods of Water Analyses, "United States Geological Survey, 1956, now in preparation for publication, have been used for the determination of certain specific constituents.

Table A-1 indicates the constituents analyzed in the various types of analyses performed in connection with this program.

Mineral analyses of the water samples were performed by the Department of Water Resources laboratories located in San Bernardino and Riverside, by Terminal Testing Laboratories, Incorporated, located in Los Angeles, or U. S. Agricultural Consultants and Laboratories, located in Burbank. Cooperating agencies which collected samples and analyzed them in their laboratories were Los Angeles County Flood Control District, San Bernardino County Flood Control District, Orange County Department of Agriculture, the California Department of Public Health Laboratory and the Metropolitan Water District of Southern California, located in Los Angeles. The laboratory which conducted and reported each mineral analysis is indicated in the right-hand column of the Mineral Analyses Tables. (Footnote C) Radioactivity counting was performed by Terminal Testing Laboratories of Los Angeles, or the California Disaster Office Laboratory, located in Sacramento.

TABLE A-1

Types of Analysis

Constituent	Standard mineral	Partial mineral	Radiological
Specific conductance	X	X	
pH[a]	X	X	
Total dissolved solids	X		
Percent sodium	X	X	
Temperature[a]	X	X	
Calcium	X		
Magnesium	X		
Sodium	X		
Potassium	X		
Carbonate	X	X	
Bicarbonate	X	X	
Sulfate	X		
Chloride	X	X	
Nitrate	X		
Fluoride	X		
Boron	X		
Silica	X		
Total activity[b]			X

a. Field determination
b. Total activity determination is the total alpha, beta, and gamma activity.

The methods and procedures for sample preparation and determination of radioactivity in ground water were those currently recommended by the United States Public Health Service's Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio. For uniformity of presentation of the results, they have been computed to the common basis of total radioactivity calculated as alpha plus beta plus gamma activity, less background activity. The statistical errors have been converted to one standard deviation, in micro-micro curies (2.22 counts per minute) per liter of water. The final result is expressed (symbolically) as x+y uuc/l. This means that in a series of determinations on the same sample, the value of x should fall between x-y and x+y, 90 percent of the time.

Water Quality Criteria

Criteria used by the Department of Water Resources in the evaluation of the acceptability of water for the most common beneficial uses are described hereinafter. In general, the values presented herein should be considered only as guides to judgment, and not as absolute limiting standards.

Criteria for Domestic Water Use

Chapter 7 of the California Health and Safety Code contains laws and standards relating to domestic water supply. Section 4010.5 of this code refers to the drinking water standards promulgated by the United States Public Health Service for water used on interstate carriers. These criteria have been adopted by the State of California. They are set forth in detail in United States Public Health Drinking Water Standards, 1962, Public Health Service Publication No. 956.

An additional factor with which water users are concerned is hardness. Hardness is due principally to calcium and magnesium salts and is generally evidenced by inability to develop suds when using soap.

For purposes of this report the following three degrees of hardness have been used. Waters containing 100 ppm or less of hardness (as $CaCO_3$) are considered "soft"; those containing 101 to 200 ppm are considered "moderately hard"; and those with more than 200 ppm are considered "very hard."

According to Section 5 of Public Health Service Publication 956, chemical substances in drinking water, either natural or treated, should not exceed the concentrations shown in Table A-2.

TABLE A-2

LIMITING CONCENTRATIONS OF MINERAL CONSTITUENTS FOR DRINKING WATER

United States Public Health Service
Drinking Water Standards, 1962

Constituent	Parts per Million
Mandatory	
Arsenic (As)	0.05
Barium (Ba)	1.0
Cadmium (Cd)	0.01
Chromium (Hexavalent) (Cr+6)	0.05
Cyanide (CN)	0.2
Lead (Pb)	0.05
Selenium (Se)	0.01
Silver (Ag)	0.05
Recommended but not mandatory	
Alkyl benzene sulfonate (ABS)	0.5
Arsenic (As)	0.01
Chloride (Cl)	250.
Copper (Cu)	1.
Carbon chloroform extract (CCE)	0.2
Cyanide (CN)	0.01
Iron (Fe)	0.3
Manganese (Mn)	0.05
Nitrate (No_3)	45.
Phenols	0.001
Sulfate (SO_4)	250.
Total dissolved solids	500.
Zinc (Zn)	5.

Interim standards for certain mineral constituents have recently been adopted by the California State Board of Public Health. Based on these standards, temporary permits may be issued for drinking water failing to meet the United States Public Health Service Drinking Water Standards, provided the mineral constituents in the following tabulation are not exceeded.

UPPER LIMITS OF TOTAL SOLIDS AND SELECTED MINERALS IN DRINKING WATER AS DELIVERED TO THE CONSUMER

	Permit	Temporary Permit
Total solids	500 (1,000)*	1,500 ppm
Sulfates (SO_4)	250 (500)*	600 ppm
Chlorides (Cl)	250 (500)*	600 ppm
Magnesium (Mg)	125 (125)*	150 ppm

Limits may be established for any organic mineral substances if their presence in water renders it hazardous, in the judgment of state or local health authorities.

The California State Board of Health has defined maximum safe amounts of fluoride ion in drinking water in relation to mean annual temperature.

Mean Annual Temperature in °F	Mean Monthly Maximum Fluoride Ion Concentration in ppm
50	1.5
60	1.0
70 - above	0.7

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*Numbers in parentheses are maximum permissible, to be used only where no other more suitable waters are available in sufficient quantity for use in the system.

Criteria for Irrigation Water

The following criteria for mineral quality of irrigation water have been developed at the University of California at Davis and at the United States Department of Agriculture Regional Salinity Laboratory at Riverside. Because of diverse climatological conditions and variations in crops and soils in California, only general limits of quality for irrigation waters can be suggested. The department uses the three broad classifications of irrigation waters listed in Table A-3.

Criteria for Industrial Water

The water quality criteria for the diversified uses of water in industry range from the exacting requirements for make-up water for high pressure boilers to the minimum requirements for water washdown and metallurgical processing.

Because of the large number of industrial uses of water and widely varied quality requirements, it is practicable to suggest only very broad criteria of quality. These variable conditions make it desirable to consider water quality requirements in broad and general terms only, and where possible, for groups of related industries rather than individually.

TABLE A-3

QUALITATIVE CLASSIFICATION OF IRRIGATION WATERS

Chemical properties	Class 1 Excellent to good (Suitable for most plants under any conditions of soil and climate)	Class 2 Good to injurious (Possible harmful for some crops under certain soil conditions)	Class 3 Injurious to unsatisfactory (Harmful to most crops and unsatisfactory for all but the most tolerant)
Total dissolved solids			
In ppm	Less than 700	700-2,000	More than 2,000
In conductance, $ECx10^6$	Less than 1,000	1,000-3,000	More than 3,000
Chloride ion concentration			
In milliequivalents per liter	Less than 5	5- 10	More than 10
In ppm	Less than 175	175- 350	More than 350
Sodium in percent of base constituents	Less than 60	60- 75	More than 75
Boron in ppm	Less than 0.5	0.5- 2.0	More than 2.0

APPENDIX B

WELL DATA, ANALYSES OF GROUND WATER AND RADIOASSAY OF GROUND WATER, 1961 AND 1962

APPENDIX B

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TABLE B-1

WELL DATA

1961 & 1962

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available: Log	Data available: Water levels	Data available: Analyses
		Santa Maria River Valley (3-12)									
9N/32W-17G1	2 miles east of Sisquoc and 0.15 mile north of Highway 148	E. C. Lyman	1929	Dom. Obs.	447	6	107		Yes	Yes	Yes
9N/33W- 8K1	0.5 mile north of Clark Avenue 1.35 miles east of Highway 101	Lake Marie Farms		Dom.	697	6	665		Yes		Yes
- 9A1	0.1 mile west of Bradley Road 0.15 mile south of Gary Road	W. E. Houke Estate		Dom.		10	220			Yes	Yes
-12R1	0.1 mile west of Highway 140, behind Blockman School in Sisquoc	Blockman School	Dec. 1950	Sch.		8	312	201-209; 214-222; 229-251; 256-286	Yes		Yes
9N/34W- 9E1	1.0 mile west of Blosser Road 50 feet south of Highway 1	Mattia Bognuda		Irr.		14	377				Yes
10N/34W- 6N1	1.0 mile north of intersection of Bonita School Road and Main Street	Grisingher and Signorelli	May 1924	Irr.	152	16	190	50- 79; 82-100; 117-130; 135-189	Yes	Yes	Yes
-19H1	50 foot north of Santa Maria Valley Railroad, 50 feet west of Black Road	Tenant, E.H. Moore	1928	Irr.	173	16	262		Yes		Yes
10N/35W- 5J1	0.45 mile west of Highway 1 0.5 mile south of Private Road	Union Sugar Company	Feb. 1925	Irr. Ind.	79	16	291	137-144; 176-188; 225-230; 250-280		Yes	Yes
- 7F1	2 miles west of Highway 1 185 feet north of West Main Street	M. J. Ellis	1928	Dom. Irr.	48	12	249	140-145; 200-225	Yes	Yes	Yes
- 9F1	0.4 mile north of Highway 166 500 feet east of Obispo Street	Waller Flower and Seed Company		Dom. Irr.	88	12	198	110-119; 152-195		Yes	Yes
-21C1	0.5 mile north of Brown Road 50 feet south of Highway 1	Mary Donovan		Irr.	93	12				Yes	Yes
10N/36W-12R1	2.7 miles west of Highway 1 1500 feet southeast of West Main Street	Avilina Morgante	11-19-30	Irr.	33	12	214	177-210	Yes		Yes
11N/34W-19Q1	2.8 miles southwest of Nipomo 30 feet west of Nipomo Mesa Road	Frank Silva	1941	Dom. Irr.	303	8	315		Yes	Yes	Yes
-29P2	4.5 miles west of Santa Maria Post Office 1.75 miles east of Bonita School Road	Union Sugar Company	Aug. 1941	Dom. Irr.	159	16	201	124-136; 158-165; 165-170; 176-190	Yes		Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Oxnard Plain Pressure Area (4-4.01)									
1N/21W-30A1	0.33 mile west of Highway 101 along Hueneme Road; 200 feet south of Hueneme Road behind garage	Ed Murhardt	Apr. 1931	Irr. Dom.		14	591	387-407; 421-434; 498-512; 532-587	Yes	Yes	Yes
-31A1	1.1 miles south of Hueneme Road; 0.38 mile west of Highway 101 along Hueneme Road	Point Mugu Game Preserve	1- 6-51	Irr.		12	234	190-230	Yes		Yes
1N/22W- 7D1	0.8 mile west of West Road; 400 feet south of Wooley Road	D. McGrath Estate Company									Yes
- 8K3	150 feet south of Howe Road and 25 feet west of Patterson Road	Alvgrez		Irr.			240				Yes
-15B3	130 feet north of Dempsey Road; 150 feet west of Ventura Railroad tracks measured along Dempsey Street	City of Oxnard		Mun.							Yes
-18E1	0.36 mile south of Orchard Road; 75 feet east of Ocean Drive; 80 feet south of LaCrecenta Street	Hollywood Beach Resort		Dom.			235	196-210			Yes
-19H1	120 feet southeast of Ocean Drive and 35 feet south of Tujunga Avenue	Silver Strand Water Company	5-19-47	Dom.		12	248	210-238	Yes		Yes
-20E1	At end of Highland Drive Silver Strand; 50 feet south of Highland Drive, 100 feet west of Palms Drive	Silver Strand Water Company	Sept. 1950	Dom.		12	242	208-220; 226-234			Yes
-20E2	15 feet south of Highland Drive; 80 feet west of south end of Panama Drive	Silver Strand Water Company	3-29-55	Mun.			1014	940-974	Yes		Yes
-20R1	475 feet west of Pacific Street; 100 feet south of Pearl Street; 50 feet southwest of Shipside Road	U.S. Navy		Obs.		12	225				Yes
-21L1	200 feet north of Clara Street Produced 60 feet east of 5th Street	City of Port Hueneme	1944	Mun.			272	163-260			Yes
-21L2	100 feet south of 9V15 which is 200 feet north of intersection of 5th and Clara Street, 60 feet east of 5th Street	City of Port Hueneme	4-30-52	Mun.		16	500	163-260;274-294			Yes

[a] Domestic (Dom), Municipal (Mun), irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Oxnard Plain Pressure Area (4-4.01) (Continued)									
1N/22W-23C1	0.3 mile southwest of Pleasant Valley Road from Etting Road; 100 feet southeast of Pleasant Valley Road in farmyard	K. L. Varnau	1938	Dom. Irr.		4	230				Yes
-26A1	20 feet south of Hueneme Road and 500 feet west of Casper Road	S. R. Pidduck	May 1924	Irr. Dam.		12	236				Yes
-28H2	80 feet east of Perkins Road; 20 feet south of Hueneme Road	Kalof Pulp and Paper Company	1949	Dom. Irr.		14					Yes
2N/22W-27M2	200 feet west of Highway 101 Alt. and 0.1 mile south of Vineyard Avenue	Brightview Oasis Motel	8-18-47	Dom.		12	225	180-210			Yes
2N/23W-25Q1	2.9 miles north of Ventura Road and 0.15 mile north of Gonzales Road (3.95 miles west of Highway 101	Frank McGrath Estate	5-28-47	Dom.	20	10	232	190-220	Yes	Yes	Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use[a]	Ground surface elevation[b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		West Coast Basin (4-11.02) Santa Monica Bay Area									
2S/15W-34K1 1264	East of Playa Del Rey; 140 feet southwest of Pershing Drive; 80 feet northwest of Moscow Street	Los Angeles Department of Water and Power	Sep. 1924	Mun.	82	16	208	97-133	Yes	Yes	Yes
3S/14W- 7K2 1317A	60 feet west of Duley Road and 2,145 feet north of El Segundo Blvd.	Standard Oil Co.	Mar. 1949	Ind.	97	16	500	304-326; 350-368; 376-410; 418-420	Yes	Yes	Yes
-29M1 722C	65 feet north Vorhees Avenue and 100 feet north of Blossom Street	California Water Service Co.	July 1937	Mun.	114	16	474	210-223;· 346-360	Yes	Yes	Yes
-30G1 711G	200 feet east of Redondo Avenue and 75 feet north of 5th Street	City of Manhattan Beach	3-2-49	Mun.	128.4		500			Yes	Yes
-30H2 721K	50 feet west of Aviation Blvd., 50 feet south of 6th Avenue	City of Manhattan Beach	Feb. 1949	Mun.	126		600			Yes	Yes
-31A3 712B	80 feet each of Pier Avenue, 450 feet south of Redondo Blvd.	California Water Service Co.	1908	Obs.	92	12	340		Yes	Yes	Yes
3S/15W- 3A1 Test Hole A No. 1265	0.8 mile northwest of Imperial Hwy., 0.3 mile southwest of intersection of Century Blvd. and Pershing Drive, ~~Playa~~ Del Rey	Los Angeles County Flood Control District	12-14-51	Test	70	8	259		Yes	Yes	Yes
-12H2 1307E	50 feet north of Palm Avenue, 150 feet east of Washington Street	City of El Segundo	3- 6-47	Mun.	135	16	380	202-229	Yes	Yes	Yes
-13R2 1309E	176 feet west of Sepulveda Blvd., 400 feet north of Rosecrans Avenue	Standard Oil Co.	Aug. 1941	Ind.	153	16	480		Yes	Yes	Yes
4S/14W-17H2 737C	120 feet north of Sepulveda Blvd., 300 feet west Valeric Street, 1.17 mile east of Juanita along Sepulveda Blvd.	Del Amo Estates Co.	Apr. 1947	Mun.	92	30 16	456	192-456	Yes	Yes	Yes
		Hawthorne-Gardena Area									
3S/13W-29G3	125 feet north of 165th Street, 660 feet east of Avalon Blvd.	Henry Ishida 653 E. 165th St.	1-25-28	Dom. Irr.	61	8	235	Gardena Zone	Yes		Yes
-31F1	0.34 mile west of Figueroa, 150 feet north of 184th Street	H. E. Distel 685 W. 184th St.	1936	Dom.	27	6	159			Yes	Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use[a]	Ground surface elevation[b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Hawthorne-Gardena Area (continued)									
3S/14W-22R2	200 feet east of Lemoli Avenue, 110 feet south of 154th Place, Gardena	Park Water Co. 4206 E. Rosecrans Ave., Compton	Nov. 1942	Dom.	52	14	227	186-214	Yes	Yes	Yes
-24A1	700 feet south of Rosecrans Blvd., 230 feet west Vermont Avenue	J. Scandler 14507 S. Vermont Ave	1936	Irr.			216				Yes
-25K4	200 feet east of Normandie Avenue, 0.14 mile south of 168th Street	Wilbur Hornstra	1901	Dom. Dairy	34	7	180		Yes	Yes	Yes
-27C1	220 feet south of Manhattan Beach Blvd., 320 feet west of Bridge over Nigger Slough, 780 feet west of Cerise Avenue	Los Angeles County Park Department	7- 7-37	Irr.	45	14	448			Yes	Yes
-35M5	0.3 mile west of Arlington Avenue, 65 feet south of 182nd Street	Moneta Water Co.		Mun.	62	16 14	435		Yes	Yes	Yes
		Torrance Area									
4S/13W- 6Q1	115 feet west of Main Street, 500 feet south of intersection of Moneta and Main Streets	Mr. George Branning 19825 Main St.	Prior to 1934	Dom.	22.5	5	60			Yes	Yes
4S/14W- 9Q1 746	750 feet east of Hawthorne Blvd., 950 feet south Torrance Blvd.	Chanslor-Canfield Midway Oil Co.	10-31-23	Ind.	106	12	557	400		Yes	Yes
-16L2 747D	200 feet east of Ocean Avenue, 725 feet south of Sepulveda Blvd.	City of Torrance	1936	Mun.	75	12	492	195-380; 450-474	Yes	Yes	Yes
-22Q1 769	0.4 mile west of Pennsylvania Avenue, 100 feet south of Lomita Blvd.	Union Oil Co. of California	11-14-29	Ind.	77	14	660	188-197; 270-300	Yes	Yes	Yes
-35E1 271A	1,650 feet south of Pacific Coast Highway, 18 feet west of Pennsylvania	Attn: W. J. Robbins Edward Sidebotham & Son, 751 E. "L" St.	1-11-26	Ind.	200	12	585	280-305; 450-475 482-502	Yes	Yes	Yes
-35F2 281C	0.46 mile south of Pacific Coast Highway, 200 feet west of Narbonne Avenue	Chandler Palos Verdes Sand and Gravel Co.	12-10-51	Ind.	200	16	695		Yes	Yes	Yes
-36H1 301	200 feet north of Anaheim Street, 300 feet east of Pacific Electric Railway, west of Wilmington and 200 feet west of Well 30C1	Palos Verdes Water Co., 78 Malago Ave. Palos Verdes	July 1923	Mun.	44	12	610	208-214; 322-610	Yes	Yes	Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Central Basin Pressure Area (4-11.03)									
3S/13W-2B1 1495B	35 feet north of Michigan Avenue, and 100 feet west of Elizabeth Avenue	City of Southgate		Mun.	100	12	700			Yes	Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)
b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Los Angeles Forebay Area (4-11.04)									
2S/13W-10P4 2769G	200 feet west of Santa Fe Avenue, 25 feet west of northwest corner of reservoir near Pacific Street	City of Vernon	Sept. 1937	Mun.	206	18	1330	1057-1101	Yes	Yes	Yes
-12K1 Owners No. 3	At rear of Hobart Ice Plant, west of intersection of 26th Street and Indiana Street	Atchison-Topeka & Santa Fe Railroad	8-8-52	Ind.	179	16	1540		Yes		Yes
-15N3	200 feet east of Alameda Street and 40 feet north of 57th Street	Pioneer Paper Company	2-5-24	Dom. Irr. Ind.		16	535		Yes		Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Main San Gabriel Basin (4-13.01)									
1S/10W- 7A1 4239A	400 feet south of Bonita Avenue, 50 feet west of North Main Avenue	Baldwin Park County Water District	1910	Dom. Irr.	423	16	526		Yes	Yes	Yes
-19N1 3023M	0.25 mile southwesterly along Virginia Avenue from intersection with Garvey Avenue and 0.05 mile southeast of El Monte	Walnut Place Mutual Water Company	10-14-50	Dom.		12	150	100-136; 140-148	Yes		Yes
1S/11W- 2G1 4198	400 feet east of Peck Road, and 200 feet north of road along ranch line, 0.5 mile north of Live Oak Avenue, 75 feet north of Jefferies Avenue, south of Monrovia	City of Monrovia	May 1924	Mun.	368	26	440	73-132; 136-180; 182-214; 217-350; 374-420	Yes	Yes	Yes
-10F1 -10F2	850 feet east of Tyler Avenue at end of Farna Street	Southern California Water Company	4-27-51	Mun.	327	18	540		Yes	Yes	Yes
-14M1	0.52 mile south of Cogswell Avenue from intersection with San Bernardino Road, 0.06 mile west of Killion Street	Herbert Mutual Water Company	1- 9-51	Dom.		12	199		Yes		Yes
*1S/11W-26K1	Well in line with east end of Valley Blvd., over San Gabriel River, 0.1 mile north of Valley Blvd.	San Gabriel Valley Water Co.	5-25-51	Mun. Ind.		20	312	110-152; 173-180; 194-205; 235-245; 276-299	Yes		Yes
-32C1	0.3 mile south and 0.03 mile west of intersection of Rush Street and Potrero Avenue	Pedro Mireles 1437 Potrero Avenue		Dom. Irr.		16	102	73-97	Yes		Yes
-33P1	55 feet south of Durfee Road and 0.46 mile southwest of Slack avenue, south of El Monte	Ed Alluis		Dom. Irr.	230	7	50	40-46	Yes	Yes	Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

*Analysis at laboratory.

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Lower Mojave River Valley (6-40) Barstow to Yermo									
9N/ 1E- 1M1	0.2 mile west of railroad station and 0.1 mile south of Highway 91, Yermo	Union Pacific Railroad	1-19-31	Mun. Ind.		18	600	97-130; 261-274 565-583	Yes	Yes	Yes
-15N2	1 mile northeast of Daggett, 2,000 feet north of Santa Fe Railroad, and 1,500 feet east of Union Pacific Railroad	Grey Phelps Cool Water Ranch		Dom. Irr.					Yes	Yes	Yes
9N/ 2E- 8F1 - 8N2	2.3 miles north of Highway 66, 0.8 mile up dirt road from Pole Line Road	Stuart C. Slack	1948	Dom. Irr.		14	300		Yes	Yes	Yes
10N/ 2E-31R1	200 feet north of Highway 91 at Inspection Station, 1 mile east of Yermo	State Department of Agriculture	1930	Dom.		10			Yes	Yes	Yes
9N/ 1W- 4G1	0.9 mile south of Highway 91, 0.1 mile west of Soapmine Road in northeast corner of ranchhouse	Dr. V. Roos		Irr. Dom.		12	115		Yes	Yes	Yes
- 9G1	2.3 miles east of Barstow, 200 feet north of Highway 66, west side of Foodtown Market, 0.75 mile east of Riverside Drive	Gospel Havel Church	May 1948	Dom.		8	62		Yes	Yes	Yes
-10D2	4 miles east of Barstow, 1.5 mile southeast of Highway 91 along Soapmine Road, 0.4 mile south of Soapmine Road on east side of road	EBCO; Consumers Oil Co.	Sept. 1944	Dom. Irr. Stk.		12	132		Yes	Yes	Yes
-10G1	0.25 mile east of Webster Road, 150 feet south of Clay River Road	Lee Tippet	1948	Dom.		10	30		Yes	Yes	Yes
-13H2	0.85 mile east of "Nebo" Main Gate, 0.5 mile northwest of Highway 66 at head of "Ditch" (Formerly Dagget Ditch and Van Dyke Ditch)	California Electric Power Company		Irr.				Ground water forced to surface by underground dam.	Yes	Yes	Yes
9N/ 2W- 1F2	0.8 mile west of Barstow, Bradshaw No. 1 source-tap at Chevrons Station at Highway 66	Southern California Water Company							Yes	Yes	Yes
10N/ 1W-32J1	1.5 mile northeast of Barstow, 0.6 mile west of Soapmine Road, 0.3 mile south of Highway 91	R. W. Dickenson	1950	Dom.		6	50		Yes	Yes	Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Coachella Valley (7-21)									
5S/ 7E-16K1	2.65 miles northwest of Indio, 0.5 mile south of Highway 99, 300 feet west of irrigation canal.	Lester Roberson	10-31-61	Dom.		6	225	169-225			Yes
-22K1	1.5 mile west of Indio, 1.3 mile west of intersection of Jackson Avenue and Highway 99, 240 feet south of Avenue 45.	Z. E. Zalay	8-30-50	Dom.		6	200	144-200			Yes
-33C1	2.5 miles west of Indio, 0.27 mile south of and 5.01 miles west of intersection of Madison Avenue and Avenue 48.	J. N. Ramirez	7-25-51	Dom.		10	339	144-338			Yes
5S/ 8E-31D1	0.15 mile south of and 0.01 mile east of Van Buren Avenue and Highway 60.	Mitchel Land and Improvement Co.	8-12-50	Dom.		6	300	156-300			Yes
-33N1	3 miles southeast of Indio, 1.1 mile east of Highway 111 and 264 feet north of Avenue 50.	E. M. Holm	3-19-51	Dom.		6	148	108-148			Yes
6S/ 8E- 7P1	0.03 mile north of and 0.4 mile east of intersection of Van Buren Avenue and Avenue 54.	M. R. Shepard	7- 7-50	Dom. Irr.		6	150	130-150			Yes
-10A4	2.25 miles east of Highway 111, 500 feet south of Avenue 52, 100 feet west of Fillmore Avenue.	E. H. McCain		Dom Irr.		6	480				Yes
-27H1	0.7 mile north of and 0.99 mile east of intersection of Polk and Avenue 60.	J. E. Stroube	6-26-51	Dom.		6	700	412-552; 640-700			Yes
6S/ 9E-30C1	0.5 mile east and 0.01 mile south of intersection of Buchanon Street and 58th Avenue.	N. Karahadian	7-21-50	Dom. Irr.		6	527	300-420			Yes
7S/ 8E-22M1	0.27 mile north and 0.02 mile east of intersection of Polk Street and Highway 99.	Vessey Brothers	12-15-50	Dom.		6	348	216-348			Yes
7S/ 9E-16K1	0.74 mile east and 0.01 mile south of intersection of National Avenue and Johnson Street.	C. C. Crocket	10-20-52	Dom.		8	685	245-685			Yes

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[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Anaheim Basin Pressure Area (8-1.01)									
5S/11W-21M3	50 feet east of Bolsa Chica Street, 0.39 mile north of Wintersburg Avenue.	C. C. Stedman	1935	Dom.	18	8	231	203-213; 225-228	Yes		Yes
-21N2	300 feet east of Bolsa Chica Street, 270 feet north of Wintersberg Avenue.	Anderson Water Co.		Dom.		6	197				Yes
-25R2	150 feet west of Cannery Street and 0.29 mile north of Talbert Avenue	Harry C. Fulton	Prior to 1914	Dom.		8	145			Yes	Yes
-28H2	450 feet north of Slater Avenue and 30 feet west of Springdale.	Callens Brothers	1- 6-31	Irr.	5	14	354	70-82; 306-354	Yes	Yes	Yes
-28K1 579E	0.33 mile west of Springdale, 45 feet south of Slater Avenue.	Bolsa Land Company	11- 4-30	Irr.	4	14	917	60-85; 175-180 292-848	Yes	Yes	Yes
-29C1	50 feet north of Los Patos Avenue and 150 feet east of Algonquin Street, easterly of two wells.	Sunset Land and Water Co.	1931	Mun.	48	6	450	333-357; 348-416	Yes	Yes	Yes
-33H1	4,450 feet south of Slater Avenue, 2,800 feet west of Edwards Street, and 50 feet west of a tank setting.	Signal Oil and Gas Co.	July 1940	Ind.		12	368	330-360			Yes
-34F3	0.26 mile west of Edwards Street and 0.74 mile north of Garfield between Bolsa 1 and 2A oil wells.	Signal Oil and Gas Co.	4-17-48	Ind.		12	773	464-773			Yes
-36B2	0.58 mile east of Huntington Beach Blvd. and 60 feet south of Talbert Avenue.	Joseph J. Courreges	1921	Dom.		7	138	Open bottom	Yes		Yes
5S/12W-12C1	0.45 mile southwest of Los Alamitos Blvd., 750 feet west of Westminster Avenue.	I. W. Hellman Ranch	1932	Dom. Irr. Stk.	13	12	705	417-473	Yes	Yes	Yes
6S/10W- 5C1	20 feet south of Garfield, 0.35 mile east of Wright.	Robert Gisler		Irr.			210				Yes
- 6H2	50 feet west of Wright, 0.45 mile south of Garfield Avenue.	William Lamb	1948	Irr.			102				Yes
- 6L2	200 feet west of Bushard Street, 0.5 mile south of Garfield Avenue.	H. J. Lamb	Prior to 1919	Dom.	12	7	150			Yes	Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use[a]	Ground surface elevation[b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
	Anaheim Basin Pressure Area (8-1.01) (continued)										
6S/10W- 7D3	2,000 feet west of Bushard Street, 200 feet south of Adams.	Jim Bushard	1942	Dom.		4	125				Yes
-18B4	150 feet east of Bushard Street, 100 feet south of Atlanta Avenue.	E. H. Gisler		Dom.		12	89			Yes	Yes
6S/11W- 1B1	550 feet south of Garfield Avenue, 0.28 mile west of Cannery Avenue.	Anaheim Sugar Co.		Irr.	13.3	12	200			Yes	Yes
- 1J3	0.50 mile north of Adams, 0.25 mile west of Cannery Avenue.	Urbain Plavan		Irr.		12	133	100-111; 121-133			Yes
- 3R2	0.30 mile south of Mansion, 300 feet west of Golden West extension	Huntington Beach Golf Course	1950	Irr. Dom.		8	279	180-279			Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use[a]	Ground surface elevation[b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Chino Basin	(8-2.01)								
1S/ 5W- 7N1	100 feet south and 75 feet west of intersection of Atchison-Topeka and Santa Fe Railroad and Oleander Avenue taken from press tank, Fontana Avenue, sample point 844.	Fontana Union Water Company	1931	Irr. Dom.			812	424-660; 680-782			
1S/ 6W-29R1	200 feet west of Etiwanda Avenue, 0.75 mile north of Marley Avenue.	S. & S. Ranch		Irr. Dom.	922						Yes
1S/ 7W-28R1	400 feet south of intersection of Highway 60 and Corona Avenue, 50 feet east of Corona (Baker) Avenue.	Peach Park Water Co.		Irr. Dom.		16	351				Yes
2S/ 7W-10M1	90 feet south of Chino Avenue, 0.12 mile east of Vineyard Avenue, east of Chino.	P. J. Crevolin		Irr. Dom.			375				Yes.
-15A1	0.55 mile south of Chino Avenue, 0.2 mile west of Archibald Avenue, north well of two wells, east of Chino.	Pietro Enrico Domenico Enricl	1931	Dom.	726	8	436				Yes
-21L1	40 feet west of Walker Avenue, 350 feet south of Merrill Avenue, 0.5 mile east of Grove Avenue	C. T. Merrill		Dom. Irr.	657	14	207				Yes
-23E1	120 feet east of Archibald Avenue and 1,267 feet north of Merrill Avenue	A. Omlin		Dom.	665	7	104				Yes
-27A1	230 feet west of Archibald Avenue, 10 feet south of Cloverdale Road extended, west 1/4 well of two wells, northeast of Norco	C. Luginbill		Dom.	642		310				Yes

[a] Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Bunker Hill Basin (8-2.06)									
1N/ 4W-29E1	123 feet south of and Darby Street, 27 feet east of California Street.	Delman Water Co.		Dom.	1304	16	429		Yes	Yes	Yes
-29F1	500 feet southwest of Cajon Blvd., 2,800 feet north of Highland Avenue, 2,000 feet east of California Street.	Delman Water Co.	3- 8-56	Mun.	1278	16	451	240-340; 418-442	Yes	Yes	Yes
1S/ 3W- 9E2	400 feet east of Alabama Street, 175 feet north of dirt road into rock company which is about 1,700 feet south of 3rd Street.	Tri-City Rock Co.	Fall 1954	Ind. Dom.		14	400				Yes
-16A1	Southeast of San Bernardino, 30 feet west of and 30 feet north of the north end of Texas Street at the Santa Ana River.	Cooks Orchards	1925 Deepened in 1954	Irr.	1292	16	418	105-395	Yes	Yes	Yes
1S/ 4W-13F2	500 feet south of Central Avenue and 1,000 feet east of Tippecanoe Avenue.	Gage Canal Company	1931	Irr.	1059	24	422	100-402			
-13F3	1,400 feet east of Tippecanoe Avenue, 150 feet north of Central Avenue.	Mesber Realty Co.	1926	Dom.	1060	12	123	102-120			Yes
-13G2	2,500 feet east of Tippecanoe Avenue, 150 feet south of Central Avenue.	Gage Canal Company	1946	Irr.	1063	24	415				Yes
-13L1	At caretaker's house, near upper end of Gage Canal, 10 feet south of canal, 1,000 east of Tippecanoe, 1,300 feet north of San Bernardino Avenue.	Gage Canal Company	1890	Dom.		10	300				Yes

[a] Domestic (Dom), Municipal (Mun), irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil) and Observation (Obs)

[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962

(continued)

State well number and other number	Location	Owner	Date completed	Use[a]	Ground surface elevation[b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		San Luis Rey Valley, Mission Basin (9-7.01)									
11S/4W- 4N1	0.1 mile north of Mission San Luis Rey; 200 feet south of Camp Pendleton Road on east side of dirt road	George Nagata	8-19-52	Irr. Dom.		14	131	104-131			Yes
- 5K1	About 1 mile north of Mission San Luis Rey on north side of Pendleton Road east of two wells	Mrs. K. Johnson	3-25-53	Irr.		11	207	169-207			Yes
- 7J1	0.5 mile west of Camp Pendleton Road and Mission Road; 50 feet west of reservoir	Mission Acres	1938	Irr.		14					Yes
- 8J1	54 feet north of Highway 76, 51 feet east of road to Academy of the Little Flower	Academy of the Little Flower	Aug. 1951	Dom.		16	227				Yes
- 8K1	At San Luis Rey Mission; north well of two, near pressure tanks	Mission San Luis Rey		Dom.			400				Yes
- 8N1	1300 feet southwest of intersection of Highway 76 and Camp Pendleton Road; 87 feet south of Highway 76	Clarence Nishizu	Mar. 1950	Dom. Irr.		14	180				Yes
- 8N3	100 feet north of the "old" Mission Road at bend 0.2 mile north of Mesa Drive intersection; 0.3 mile west of Camp Pendleton Road	C. S. Starr		Dom. Irr.							Yes
-18L3	1,000 feet northeast of Carlsbad Pumping Plant; 30 feet north of Highway 76	City of Oceanside	1939	Mun.		18	171	138-166			Yes
-18L4	50 feet south of Highway 76; 160 east of reservoir (north yard)	Carlsbad Mutual Water Company	1951	Mun.							
11S/5W-13L1	400 feet south of San Luis Rey River, 2,100 feet northwest of Highway 76	St. Charles Priory	1948	Irr. Dom.			104	86-104			Yes
-13Q1	1,200 feet northwest of Oceanside Pala Highway at City of Oceanside Booster Plant, 900 feet northeast of private road (at end of Oceanside airport runway)	City of Oceanside	1936	Mun.		18	160	140-160			Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)

b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		El Cajon Valley (9-16)									
15S/ 1E-31R1	220 feet east of Highway 80 and 0.16 mile north of Flume Drive, northeast of El Cajon	Russel Segal	1948	Dom.		8	112				Yes
16S/ 1W- 1G1	30 feet west of Bostonia Street, 0.24 mile north of Broadway	Jack Graves	1948	Dom. Irr.		48	64				Yes
- 2K6	250 feet south of Broadway, 0.28 mile west of 1st Avenue, north of El Cajon	Bob Glib	1920	Dom.		72	50				Yes
- 3C2	At El Cajon sewage plant, 140 feet east of old railroad crossing, 0.40 mile north of Broadway, El Cajon	City of El Cajon	1952	Dom.		8					Yes

[a] Domestic (Dom), Municipal (Mun), irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)
[b] U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

WELL DATA

1961 & 1962
(continued)

State well number and other number	Location	Owner	Date completed	Use [a]	Ground surface elevation [b]	Size of casing in inches	Total depth in feet	Intervals of perforated casing in feet	Data available		
									Log	Water levels	Analyses
		Tia Juana Basin (9-19)									
18S/ 2W-32H1	0.25 mile south of Sunset, 0.12 mile east of 15th Street, extended	California Water and Telephone Co.	Prior to 1919	Test	11.5	10	28	None, open bottom			Yes
-32P4	0.03 mile east of west end of Sunset Avenue	California Water and Telephone Co.	8-28-47	Test	7	8	100	85-98			Yes
-33K4	81 feet east and 25 feet north of intersection of Sunset Avenue and 19th Street	James Jackson		Irr.		12					Yes
-35L1	200 feet east of Gate 2 Road (Dairy Mart Road), 100 feet north of Freeway 101, North Frontage Road	Henry Schaffner	May 1950	Irr	45		101				Yes
19S/ 2W- 2E1	West side of Gate 2 (Dairy Mart Road), 0.35 mile south of Tia Juana River	Henry Schaffner		Irr.	33						Yes
- 5C6	0.5 mile south of Sunset (Banana), 1.22 mile west of 19th Street	California Water	10- 8-47	Test	9	8	100	89-98			Yes

a Domestic (Dom), Municipal (Mun), Irrigation (Irr), Industrial (Ind), Livestock (Stk), Military (Mil), and Observation (Obs)
b U S Geological Survey datum (Feet above mean sea level unless otherwise indicated)

ANALYSES OF GROUND WATER

1961

TABLE B-2

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents o			Total ppm	N.C ppm	
						SANTA MARIA RIVER VALLEY (3-12)																	
E. C. Lyman Dom. - Obs.	9N/32W-17G1	3- 8-61	--	1210	8.0	102 5.10	75 6.17	65 2.87	2.7 0.07	0 0.00	302 4.95	379 7.88	34 0.94	25 0.40	0.1 0.01	0.21	25		980	20	564	248	Lein DLE
		12-18-61	--	1300	8.0					0 0.00	346 5.67		34 0.96								669	385	
Lake Marie Farms Dom.	9N/33W- 8K1	10- 5-61	--	880						0 0.00	244 4.0	27 0.73									338	188	USAG DLE
W. E. Houke Estate Dom.	9N/33W- 9A1	3- 8-61	--	613	6.9	16 0.80	10 0.82	84 3.65	2.6 0.07	0 0.00	41 0.68	7.20 0.15	145 4.09	24 0.39	0.30 0.02				400	68	82	48	S. B. SHAW
		10- 5-61	--	630	6.3					0 0.00	49 0.80		143 4.02								85	45	USAG DLE
Blockman School Dom.	9N/33W-12R1	3- 8-61	--	1083	7.9					0 0.00	228 4.76		28 0.79								504	266	S. B. SHAW
		10- 5-61	--	1020	7.8					0 0.00	293 4.80		38 1.05								480	240	USAG DLE
Mattia Borgunda Irr.	9N/34W- 9E1	10- 9-61	--	715	7.3	40 2.02	88 6.90	59 2.55	1.1 0.03	0 0.00	93 1.51	92 1.92	113 3.17	10 0.16	0.2 0.01	0.11	44		458	39	196	120	USAG DLE
Grisingher & Signorelli Irr.	10N/34W- 6N1	10- 5-61	--	1750	7.5					0 0.00	311 5.10		74 2.09								867	612	USAG DLE
E. H. Moore Irr	10N/34W-19H1	10- 5-61	--	1420	7.3	142 7.10	66 5.40	85 3.70	2.9 0.07	0 0.00	256 4.20	451 9.38	93 2.62	18 0.29	0.4 0.02	0.24	20		1134	23	625	415	USAG DLE
Union Sugar Co. Dom. Irr.	10N/35W- 5J1	10- 9-61	--	1360	7.2					0 0.00	242 3.96		69 1.94								640	442	USAG DLE
Mary J. Ellis Dom. Irr.	10N/35W- 7F1	10- 9-61	--	1745	7.1	297 14.78	35 2.88	89 3.87	3.1 0.08	0 0.00	282 4.62	660 13.75	108 3.04	4.1 0.07	0.2 0.01	0.27	27		1524	18	883	652	USAG DLE
Waller Flower and Seed Co. Irr. Dom.	10N/35W- 9F1	3- 9-61	65	1600	7.9	187 9.37	78 6.37	87 3.80	3.6 0.09	0 0.00	212 3.48	648 13.49	82 2.30	13 0.21	0.5 0.03	0.37	26		1286	19	787	613	Lein DLE
Mary Donovan Irr.	10N/35W-21C1	3- 9-61	63	1800	7.9	136 6.80	85 7.04	149 6.47	3.5 0.09	0 0.00	198 3.25	559 11.65	166 4.69	46 0.74	0.1 0.01	0.29	28		1402	32	692	529	USAG DLE

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a			Total ppm	N.C ppm	
						SANTA MARIA RIVER VALLEY (3-12) (Continued)																	
Mary Donovan (continued) Irr.	10N/35W-21C1	10- 9-61	--	1450	7.8	109 5.45	73 5.95	115 5.00	1.8 0.05	0 0.00	275 4.52	393 8.19	126 3.54	31 0.5	0.1 0.01	0.21	26		1120	30	570	344	USAG DLE
Avilina Morgante Irr.	10N/36W-12R1	3- 9-61				124 6.2	57 4.66	67 2.90	2.6 0.07	0 0.00	254 4.16	353 7.35	76 2.16	11 0.18	0.2 0.01	0.23	29		872	21	543	335	Lein DLE
Frank Silva Dom. Irr.	11N/34W-19Q1	10- 5-61		755	7.6	74 3.71	26 2.10	51 2.20	1.9 0.05	0 0.00	185 8.04	148 3.08	65 1.82	6.0 0.10	0.3 0.02	0.14	30		544	27	291	139	USAG
Union Sugar Co. Dom. Irr.	11N/34W-29P2	10- 5-61		1040	7.0					0 0.00	217 3.55		67 1.88								415	237	USAG
Union Sugar Co. Dom. Irr.	11N/35W-18M1	10- 5-61		1320	7.5					0 0.00	205 3.36		51 1.44									645	USAG
Union Sugar Co. Dom. Irr.	11N/35W-28B1	10- 5-61	--	530	6.8	35 1.74	13 1.14	44 1.9	3.2 0.08	0 0.00	104 1.7	80 1.66	46 1.29	2.6 0.04	0.6 0.03	0.24	17		326	39	144	9	USAG DLE
Union Sugar Co. Dom. Irr.	11N/35W-33F1	10- 9-61		1920	6.8	206 10.28	120 9.87	91 3.96	4 0.10	0 0.00	481 7.88	602 12.53	98 2.76	8.0 0.13	0.1	0.32	22		1688				USAG
Mary B. Enos Dom.	11N/36W-13R1	3- 9-61	--	1280	8.0	140 7.02	52 4.28	69 3.0	3.5 0.09	0 0.00	245 4.02	449 9.34	45 1.24	1.4 0.02	0.1 0.01	0.23	31		1090	21	565	364	Lein DLE

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as CaCO3: Total ppm	Hardness as CaCO3: NC ppm	Analyzed by c
								CUYAMA VALLEY (3-13)															
Apache School Dom.	N/24W-13C2	4- [illegible]-61	60	1970	7.9					0 0.00	21 3.[illegible]		18.0 0.51								1095	91	Lein
		10- 4-61	--	1930	.5					0 0.00	204 3.35		18.0 0.51								1110	943	Lein
U. S. Government Forest Service Dom.	9N/24W-19F1	4- 7-61		1050	7.4					19 .64	154 2.52		18.0 .51								1033	35	Lein
		10- 4-61			7.4					 0.00	1[illegible] 2.92		16.0 0.46								1045	99	USAG
H. S. Russell Irr. & Dom.	10N/25W-20H1	4- [illegible]-61	61	1[illegible]25	[illegible].1	250 12.52	95 7.75	75 3.25	4 .10	0 0.00	122 2.0	1007 20.97	130 0.36	6.8 .11	0.8 .04	0.20	16		1804	14	1014	914	Lein
		10- 4-61		2200	7.6	36[illegible] 1[illegible].35	98 8.05	89 3.85	4 0.10	0 0.00	189 3.10	1237 25.[illegible]	20 0.55	18.0 0.29	0.3 0.04	0.28	16		2346	13	1320	1165	USAG
E. H. Mettler & Sons Irr.	10N/25W-21G1S	4- 7-61	62	2125	7.9					0 0.00	190 3.11		20 0.57								1199	1043	Lein
		10- 4-61			7.5					0 0.00	215 3.51		21 0.59								1236	1060	USAG
E. H. Mettler & Sons Irr.	10N/25W-22E1S	4- 7-61	62	2130						0 0.00	196 3.21		20 0.54								1210	1049	Lein
		10- 4-61		2000	7.5					0 0.00	177 2.90		17 0.47								1105	940	USAG
E. H. Mettler & Sons Dom. & Irr.	10N/25W-23E1S	4- 7-61	[illegible]1	2060	7.6					0 0.00	131 2.15		127 3.57								923	815	Lein
		10- 4-61		2150	7.6					0 0.00	128 2.10		120 3.38								915	810	USAG
Adloph Kirschenmann Irr.	10N/25W-32H1S	4- [illegible]-61	62	1630	7.9	200 10.0	91 7.52	68 2.95	4.0 0.09	0 0.00	138 2.27	860 17.90	24 0.68	35.0 0.57	0.8 0.04	0.21	16.0		1630	14	893	300	CES
		10- 4-61		1730	7.0	203 10.15	10 7.77	68 2.95	3.0 0.07	0 0.00	186 3.03	860 17.91	21 0.57	29.0 0.47	0.8 0.04	0.25	13.0		1668	13	946	794	Lein

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a			Total ppm	NC ppm	
						CUYAMA VALLEY (3-13) (Continued)																	
Hubert Russell Dom. Irr., Stk.	10N/26W- 4R1S	4- 7-61	67	1610	8.3	225 11.25	89 7.30	106 4.63	4.3 0.11	6.0 0.20	146 2.40	922 19.19	34 0.95	15.0 0.24	0.6 0.03	0.31	22		1630	14	893	808	CES
		10- 4-61		1770	7.5					0 0.00	141 2.32		35 0.97								891	775	USAG
Hubert Russell Dom, Irr., Stk.	10N/26W- 9R3S	10- 4-61		1920	7.4					0 0.00	141 2.30		21 0.60								1030	890	USAG
Cuyama Ranch Stk.	10N/26W-14C1S	4- 7-61	64	1950	8.2	260 12.95	100 8.25	75 3.26	5.1 0.13	0 0.00	183 3.00	997 20.75	14.0 0.40	0.7 0.038		0.10	20.0		1654	13	1060	910	CES
		10- 4-61		1970	7.4					0 0.00	179 2.94		17 0.49								1053	906	USAG
Herbert Russell Irr.	10N/26W-14C4S	4- 7-61	64	1815	8.0					0 0.00	183 3.00		12 0.35								1000	850	CES
Stanley Germain Irr.	10N/26W-21Q2S	4- 7-61	65	1220	8.3					12 0.40	128 2.10		12 0.35								270	145	CES
Goehring Brothers Dom. Irr.	10N/26W-23P1S	4- 7-61	69	2000	8.0	272 13.57	103 8.54	88 3.85	5 0.12	0 0.00	149 2.45	1106 23.03	35 0.98	8.4 0.14	0.2 0.01	0.30	19.0		1706	15	1104	981	Lein
Walt Smith Dom. & Irr.	10N/27W-11C1S	10- 4-61		4300	7.5	505 25.20	256 21.05	370 16.10	5.0 0.13	0 0.00	233 3.81	2707 56.35	105 2.95	8.2 0.13	0.2 0.01	0.69	23		4974	26	2313	2122	USAG
Division of Highways	10N/27W-12E2	10- 4-61		1000	7.2	117 5.85	27 2.20	74 3.20	0.08 0.02	0 0.00	207 3.40	331 6.88	29.0 0.82	21.0 0.34	0.4 0.02	0.18	22.0		812	28			

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						OXNARD PLAIN PRESSURE AREA (4-4.01)																	
Ed Murkhardt Irr. & Dom.	1N/21W-30A1	6-16-61	--	990	7.9	105 5.24	24 1.97	86 3.74	4.0 0.10	0 0.00	253 4.12	250 5.21	38 1.07	2.5 0.04	0.50 0.03	0.60	40		690	34	359	123	S. B. Shaw
		[illegible]- 6-61	--	975	7.[illegible]	90 4.50	28 2.34	83 3.65	3.3 0.10	0 0.00	259 4.24	258 5.37	46 1.31	2.6 0.04	0.40 0.02	0.62	27		574	36	342	130	USAG DLE
		12-13-61	--	990	8.0	91 4.55	29 2.42	82 3.55	2.3 0.06	0 0.00	2[illegible] 4.[illegible]0	257 5.35	39 1.07	0 0	0.3 0.02	0.50	24		754	33	364	129	USAG DLE
Point Mugu Game Preserve Irr.	1N/21W-31A1	6-15-61	--	1130	7.4					0 0.00	254 4.16		31 1.04								462	254	S. B. Shaw
		12- 6-61	--	1115	7.6					0 0.00	275 4.50		37 1.05								470	245	UCR Shatto
D. McGrath Company	1N/22W- 7D1	4-11-61	--	1207	7.7	122 6.10	39 3.23	100 4.35		0 0.00	250 4.10	398 8.29	44 1.24	0 0	0.75	0.71		Iron- 0.09 ppm	834				Fruit Growers Lab
		12-19-61	--	1202	7.4	122 6.10	42 3.45	90 3.92		0 0.00	251 4.12	390 8.13	43 1.21	0 0	0.85	0.67		Iron - 0.14 ppm	938				Fruit Growers Lab
J. A. Alvarez, Jr. Irr. & Dom.	1N-22W- 8K3	6-15-61	--	1180	8.0	120 5.99	40 3.29	93 4.05	4.1 0.11	0 0.00	264 4.34	3.66 7.62	45 1.27	0 0	0.8 0.04	0.84	25		836	30	462	245	Lein DLE
		6-23-61	--	1215	7.5	123 6.15	43 3.50	89 3.85	3.8 0.10	0 0.00	260 4.26	386 8.05	56 1.58	0 0	0.08 0.04	0.81	24		900	28	483	270	USAG DLE
		12- 5-61	--	1241	8.0					0 0.00	255 4.18		43 1.21								481	272	S. B. TAMM
City of Oxnard Mun.	1N-22W-15B3	6-29-61	--	1470	7.4	161 8.05	46 3.83	106 4.60	4.5 0.12	0 0.00	284 4.65	463 9.64	67 1.87	19 0.30	0.6 0.03	0.54	22		1270	28	594	361	USAG DLE
Hollywood Beach Resort Dom.	1N-22W-18E1	6-12-61	--	1205	7.7					0 0.00	250 4.10		46 1.30								495	290	CES Shatto
		6-15-61	--	1200	7.5	129 6.43	36 2.97	93 4.05	3.8 0.10	0 0.00	236 3.87	405 8.45	52 1.44	0 0	0.8 0.04	0.87	25		896	30	472	278	Lein DLE
		12-5-61	--	1182	7.9	129 6.29	38 3.12	84 3.65	4.2 0.11	0 0.00	256 4.20	378 7.88	41 1.16	0.5 0.01	0.84 0.04	0.72	35		815	28	473	263	S. B. Shaw

ANALYSES OF GROUND WATER
1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a			Total ppm	NC ppm	
						OXNARD PLAIN PRESSURE AREA (4-4.01) (Continued)																	
Silver Strand Water Company Obs.	1N/22W-19H1	5-22-61	66	6826	7.2	354 17.66	172 14.14	900 39.15	12 0.31	0 0.00	39 0.64	446 9.30	2130 61.43	0.0 0.00	0.64 0.03	0.72	4		5230	55	1566	1554	S. B. Shaw
		11-28-61	65	5780	7.3	301 15.00	160 13.15	651 28.30	8.2 0.21	0 0.00	31 0.50	384 8.00	1722 48.50	9.9 0.16	0.6 0.03	0.60	3		3727	50	1400	1383	UCR Shatto
	1N/22W-20E1	5-22-61	65	16694	6.8	1383 69.01	509 41.84	2050 89.18	28 0.72	0 0.00	178 2.92	1008 21.00	6175 174.14	0.0 0.00	1.08 0.06	0.92	24		13790	44	5523	5377	S. B. Shaw
		11-20-61	65	9506	6.8	718 35.83	242 19.89	990 43.07	16 0.41	0 0.00	20 0.32	500 10.41	3125 88.13	0 0.00	0.61 0.03	0.80	2.2		7070	43	2784	2763	S. B. Shaw
	1N/22W-20E2	4- 7-61	--	1197	7.8	136 6.78	30 2.51	100 4.35		0 0.00	262 4.30	390 8.13	44 1.24	0 0	0.35	0.44		Fe - 0.26 ppm	962		465	250	Fruit Growers Lab.
		11-28-61	--	1178	7.4	136 6.79	31 2.58	90 3.92		0 0.00	256 4.19	374 7.80	41 1.13	0 0	0.55	0.45		Fe - 0.26 ppm	929		469	259	Fruit Growers Lab.
U. S. Navy Obs.	1N/22W-20R1	5-15-61	64	5587	7.4	645 32.19	221 18.17	250 10.88	12 0.31	0 0.00	185 3.04	463 9.64	1700 47.94	0.0 0.00	0.68 0.04	0.68	27		3520	13	2510	2458	S. B. Shaw
		11-17-61	64	7925	7.5	882 44.01	327 26.89	315 13.70	15 0.38	0 0.00	179 2.94	512 10.66	2490 70.22	9 0.15	0.68 0.04	0.70	29		5867	16	3545	3398	S. B. TAMM
City of Port Hueneme Mun.	1N/22W-21L1	5-19-61	67	9996	7.3	932 46.51	318 26.15	835 36.32	6.0 0.15	0 0.00	63 1.04	543 11.31	3400 95.88	11 0.18	0.75 0.039	0.70	8		7353	33	3633	3581	S. B. TAMM
		11-22-61	65	8375	5.2	671 33.48	299 24.56	588 25.57	11 0.28	0 0.00	2 0.04	335 6.99	2680 75.58	11 0.19	0.63 0.03	0.56	9		5594	30	2902	2900	S. B. TAMM
	1N/22W-21L2	5-18-61	68	1013	8.2	60 2.99	35 2.89	92 4.00	4.6 0.12	0 0.00	139 2.28	227 4.72	98 2.76	2.6 0.04	0.67 0.035	0.64	3		610	40	294	180	S. B. TAMM
		11-22-61	66	9661	7.9	808 40.32	315 25.90	776 33.76	15 0.38	0 0.00	49 0.8	481 10.02	3200 90.24	11 0.18	0.53 0.027	0.59	6		6595	34	3311	3271	S. B. TAMM
K. L. Varnau Dom. Irr.	1N/22W-23C1	6-29-61	--	1156	7.7	114 5.70	51 4.19	82 3.55	4.0 0.10	0 0.00	248 4.07	389 8.10	45 1.24	0 0	0.8 0.04	0.78	27		932	26	495	291	USAG DLE
		12-14-61	--	1120	7.1					0 0.00	256 4.2		45 1.25								469	259	USAG DLE

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C ppm	Analyzed by c
						OXNARD PLAIN PRESSURE AREA (4-4.01) (Continued)																	
S. R. Pidduck Dom. Irr.	1N/22W-26A1	6-14-61	66	1306	7.4	121 6.05	39 3.19	91 3.95	4.2 0.11	0 0.00	257 4.21	371 7.72	50 1.41	0 0	0.8 0.04	0.87	30		890		462	251	Lein DLE
		12-12-61	--	1160	7.4					0 0.00	255 4.18		49 1.38								402	253	USAG DLE
Kalof Pulp and Paper Co. Dom. and Ind.	1N/22W-28H2	6-13-61	--	1195	7.1	124 6.18	35 2.92	89 3.85	4.2 0.11	0 0.00	171 2.80	391 8.15	67 1.91	0 0	0.8 0.04	0.75	19		858	29	455	315	Lein DLE
		12-13-61	--	1080	7.6	134 6.70	35 2.85	81 3.50	2.0 0.05	0 0.00	236 3.86	355 7.39	67 1.89	0 0	0.3 0.02	0.55	16		844	27	478	285	USAG DLE
Brightview Motel Dom.	2N/22W-27M2	6-14-61	--	1332	7.3	137 6.84	52 4.30	93 4.05	4.5 0.12	0 0.00	248 4.06	435 9.06	57 1.75	25 0.25	0.7 0.05	0.40	31		1014	26	557	354	S. B. TAMM
		12-12-61	67	1400	7.3	141 7.06	67 5.50	95 4.13	3.5 0.09	0 0.00	290 4.75	485 10.1	59 1.66	16 0.26	0.5 0.03	0.71	25		1132	25	628	390	USAG DLE
Frank McGrath Estate Dom.	2N/23W-25Q1	6-25-61	--	1600	7.4	160 8.02	39 3.18	150 6.50	3.9 0.10	0 0.00	240 3.94	538 11.2	85 2.37	34 0.55	0.4 0.02	0.65	25		1166	36	560	363	Lein DLE
		12-12-61	--	1525	7.3	164 8.18	39 3.20	133 5.80	2.3 0.06	0 0.00	241 3.95	512 10.67	79 2.22	29 0.47	0.4 0.02	0.58	20		1196	34	569	371	USAG DLE

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
						WEST COAST BASIN (4-11.02) SANTA MONICA BAY AREA																	
Los Angeles Department of Water and Power	2S/15W-34K1	3-13-61	68	1005	7.5	64 3.12	29 23.9	77 3.34		0 0.00	158 2.59	101 2.08	147 4.14	50 0.81					626		272		LAFCL TU, HDS
		3-14-61	70	980	8.7	63 3.09	28 23.1	116 5.05		18 0.62	186 3.03	79 1.62	164 4.62	35 0.56					690		266		LAFCL TU, HDS
Standard Oil Co.	3S/14W-7K2	3-23-61	75	1018	8.1						505 8.29	76 2.15									236	0	Lein DLE
		7- 3-61	--	893	8.3	50 2.5	28 2.31	134 5.85		0 0.00	485 7.95	15 0.31	85 2.40						797		235		LAFCL TU, HDS
California Water Service Company	3S/14W-29M1	3-21-61	72	802	7.8	67 3.34	29 1.40	66 2.87	5.0 0.13	0 0.00	232 3.80	37 0.77	110 3.10	0 0	0.3 0.02	0.15	22		450	37	237	47	Lein DLE
City of Manhattan Beach	3S/14W-30G1	3-28-61	--	1880	7.7	170 8.52	53 4.38	110 4.80	8.5 0.22	0 0.00	219 3.59	72 1.50	457 12.9	0 0	0.2 0.01	0.2	23		1272	27	645	465	Lein DLE
		12- 5-61	68	2200	7.7	210 10.48	60 4.90	139 6.05	10 0.26	0 0.00	215 3.52	72 1.71	562 15.85	8 0.13	0.4 0.02	0.11	29		1678	28	769	593	S. B. TAMM
City of Manhattan Beach Mun.	3S/14W-30H2	3-28-61	74	810	7.9						247 4.05	125 3.52									241	38	Lein DLE
		12- 5-61	65	874	7.9					0 0.00	239 3.92	136 3.84									253	57	S. B. TAMM
California Water Service Company	3S/14W-31A3	5-10-61	70	1065	7.5	38 1.89	15 1.20	175 7.60	3.5 0.09	0 0.00	245 4.01	55 1.15	156 4.40	55 0.84	0 0	0.32	14		658	70	105	0	Lein DLE
Los Angeles County Flood Control District	3S/15W- 3A1	3-13-61	68	30860	7.0	1170 58.5	881 80.0	5875 255		0 0.00	132 2.17	1520 31.7	12500 353	0 0				NH_4 = 1 ppm	22080		6390		LAFCL TU, HDS
City of El Segundo Mun.	3S/15W-12H2	3-24-61	72	1750	7.6	131 6.54	50 4.06	160 6.95	88 0.23	0 0.00	343 5.62	125 2.61	340 9.60	0 0	0.4 0.02	0.58	23		1332	39	530	249	Lein DLE
		11-16-61	72	1748	8.0	115 5.74	48 3.95	160 6.96	9.4 0.24	0 0.00	237 3.88	132 2.74	370 10.44	1.0 0.02	0.60 0.03	0.76	32		1125	41	482	288	S. B. Shaw
Standard Oil Co. Ind.	3S/15W-13R2	3-24-61	69	1280	7.9						187 3.07		292 8.22								332	178	Lein DLE

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a	Total dissolved solids in ppm b	Percent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ NC ppm	Analyzed by c
WEST COAST BASIN (4-11.02) (Continued) SANTA MONICA BAY AREA																							
Del Amo Estates Co. Ind	4S/14W-17H2	2-7-61	61	721	7.9	36.4 1.8	13.4 1.1	103 4.47		0 0.00	292 4.32	2.5 0.05	92 2.59	0 0					539		146		LAFCL Hds

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as CaCO$_3$ Total ppm	Hardness as CaCO$_3$ NC ppm	Analyzed by c
						WEST COAST BASIN (4-11.02) HAWTHORNE-GARDENA AREA																	
Henry Ishida Dom. & Irr.	3S/13W-29G3	3-22-61	68	1210	7.9					0/0.00	315/5.16		184/5.17								417	159	Lein DLE
		11-16-61	68	1304	8.0					0/0.00	316/5.18		197/5.56								445	186	S. B. TAMM
Mrs. H. E. Distel Dom.	3S/13W-31F1	3-23-61	68	1800	7.5	171/8.56	52/4.30	122/5.30	3.7/0.09	0/0.00	339/5.55	175/3.65	308/8.70	17/0.27	0/0	0.25	22		1196	29	643	365	Lein DLE
Park Water Co. Dom.	3S/14W-22R2	3-28-61	69	1330	7.6						217/3.55		289/8.15								399	221	Lein DLE
J. Scandler Irr.	3S/14W-24A1	4- 8-61	--	670	7.9	51/2.57	16/1.25	69/3.00	4.8/0.12	0/0.00	209/3.43	25/0.53	105/2.95	0/0	0.4/0.02	0.12	12		302	43	191	19	Lein DLE
		12- 2-61	--	771	7.6	64/3.19	15/1.23	71/3.09	4.6/0.12	0/0.00	232/3.80	39/0.81	106/2.99	0/0	0.36/0.02	0.16	23		450	40	224	34	S. B. Shaw
Wilbur Hornstra	3S/14W-25K4	4-26-61	68	637	8.2	61/3.01	16/1.28	50/2.18	3.0/0.07	0/0.00	226/3.70	42/0.88	69/1.95	0.4/0.0	0.39/0.02	0.09	15		389	33	216	31	S. B. TAMM
		12- 1-61	--	668	7.9					0/0.00	288/3.74		69/1.85								230	43	S. B. TAMM
L. A. County Park Dept. Irr.	3S/14W-27C1	3-21-61	68	1046	7.3					0/0.00	222/3.64		187/5.27								328	146	S. B. TAMM
		12- 1-61	--	1064	7.7					0/0.00	227/3.72		190/5.36								338	152	S. B. TAMM
Moneta Water Co. Mun.	3S/14W-35M5	3-21-61	73	476	7.6					0/0.00	242/3.96		33/0.93								132	0	S. B. TAMM
		12- 1-61	73	539	7.5					0/0.00	253/4.14		40/1.13								146	0	S. B. TAMM

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Percent sodium	Hardness as CaCO$_3$ Total ppm	Hardness as CaCO$_3$ N.C. ppm	Analyzed by c
							WEST COAST BASIN (4-11.02) TORRANCE AREA																
Mr. George Branning Dom.	4S/13W- 6Q1	3-21-60	68	1116	7.7					0 0.00	254 4.16		85 2.40								378	170	CES Shatto
		8-14-61	80	1070	8.0	121 5.96	15 1.23	91 3.96		0 0.00	248 4.07	224 4.67	90 2.57	1 0.01				NH$_4$ = 1 ppm	791		365		LAFCL TU, LS
Chansler Canfield Midway Oil Co.	4S/14W- 9Q1	2- 7-61	67	998	8.0	33 1.62	12 1	164 7.1		0 0.00	270 4.42	1	188 5.42						667		131		
		8- 7-61	73	1010	7.8					0 0.00	262 4.30		200 5.79								157		Lein DLE
City of Torrance Mun.	4S/14W-16L2	3-23-61	73	780	7.7					0 0.00	327 5.35		99 2.77								148	0	
Union Oil Co. of Calif. Ind.	4S/14W-22Q1	3-22-61	65	600	7.6					0 0.00	253 4.15		60 1.71								107	0	Lein DLE
		11-27-61	62	606	7.7					0 0.00	268 4.40		56 1.58								92	0	S. B. Shaw
Edward Sidabotham and Son Ind.	4S/14W-35E1	3-28-61	62	1000	7.7					0 0.00	378 6.20		138 3.89								301	0	Lein DLE
		11-29-61	68	1070	7.4					0 0.00	373 6.12		136 3.84								298	0	S. B. TAMM
Chandler Sand and Gravel Co. Ind.	4S/14W-35F2	3-28-61	72	1490	8.3					3.0 0.10	385 6.31		190 5.36								392	71	Lein DLE
		11-29-61	66	1932	7.3	173 8.63	54 4.41	179 7.79	6.7 0.17	0 0.00	342 5.60	422 8.80	225 6.35	1.0 0.01	0.66 0.03	0.35	30		1311	37	652	372	S. B. TAMM
Palos Verdes Water Co. Mun.	4S/14W-36H1	3-30-61	76	820	6.9					0 0.00	350 5.74		95 2.68								101	0	S. B. TAMM
			78	846	7.9					0 0.00	360 5.90		98 2.76								103	0	S. B. TAMM

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)	Carbon-ate (CO_3)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Ni-trate (NO_3)	Fluo-ride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						CENTRAL BASIN PRESSURE AREA (4-11.03)																	
City of Southgate Mun.	3S/13W- 2B1	8-23-61	--	920	7.9					0 0.00	278 4.55	71 2.00									355	128	CES Shatto
		12-18-61	64	650	8.1	85 4.24	16 1.32	33 1.44	2.6 0.07	0 0.00	278 4.56	55 1.54	30 0.85	7.5 0.12	0.40 0.02	0.1	26		400	20	280	52	S. B. Shaw
						LOS ANGELES FOREBAY AREA (4-11.04)																	
City of Vernon	2S/13W-10P4	8-17-61	64	675	8.2					0 0.00	247 4.05	41 1.14									245	42	USAG DLE
		12-20-61	66	663	7.6					0 0.00	251 4.12	34 0.96									252	46	S. B. Shaw
Atchison-Topeka & Santa Fe Railroad Ind.	2S/13W-12K1	8-22-61	--	675	8.0					0 0.00	243 3.98	63 1.77									264	65	USAG DLE
Pioneer Paper Co. Dom. Irr. Ind.	2S/13W-15N3	8-17-61	--	685	8.1					0 0.00	246 4.05	34 1.07									264	61	USAG DLE
			66	716	7.5	69 3.44	25 2.02	43 1.87	3.6 0.09	0 0.00	262 4.30	105 2.19	34 0.96	2.7 0.04	0.23 0.01	0.16	23		460	25	273	58	S. B. TAMM

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						MAIN SAN GABRIEL BASIN (4-13.01)																	
Baldwin Park County Water District Dom. & Irr.	1S/10W- 7A1	8-10-61	--	676	7.7					0 0.00	223 3.65		73 2.05								315	133	CES Shatto
		12-29-61	64	799	7.7					0 0.00	227 3.72		92 2.59								340	162	S. B. Shaw
Walnut Place Mutual Water Co. Dom.	1S/10W-19N1	8-10-61	--	1030	7.4					0 0.00	193 3.17		88 2.47								366	207	USAG DLE
		12-29-61	66	1033	7.8	112 5.59	21 1.73	80 3.48	6.2 0.16	0 0.00	198 3.24	220 4.59	88 2.49	38 0.61	0.44 0.02	0.10	19		690	32	360	206	S. B. Shaw
City of Monrovia Mun.	1S/11W- 2G1	12-29-61	63	432	7.9	54 2.69	15 1.23	16 0.70	1.6 0.04	0 0.00	205 3.36	12 0.24	12 0.34	46 0.74	0.50 0.03	0.05	26		285	15	198	30	S. B. Shaw
		8- 8-61	77	469	7.6	73 3.65	14 1.15	10 0.44		0 0.00	235 3.85	10 0.21	37 1.04						336		234		LAFCL TW, LS
Southern California Water Co.	1S/11W-10F2	8-17-61	--	400	7.9					0 0.00	204 3.35		12 0.32								178	10	USAG DLE
Herbert Mutual Water Co. Dom.	1S/11W-14M1	8-17-61	--	480	8.0	62 3.12	17 1.40	11 0.47	3.7 0.08	0 0.00	199 3.27	39 0.83	18 0.5	20 0.32	0.1 0.01	0.08	14		386	93	225	61	USAG DLE
San Gabriel Valley Water Co. Mun. Ind.	1S/11W-26K1	8-17-61	--	775	8.0	97 4.87	21 1.74	30 1.30	4.5 0.12	0 0.00	215 3.52	119 2.49	52 1.44	30 0.48	0.2 0.01	0.14	15		532	16	331	155	
		12-24-61	66	789	7.9					0 0.00	205 3.36		54 1.52								340	172	S. B. Shaw
Pedro Mireles Dom. & Irr.	1S/11W-32C1	8-17-61	--	790	8.4					11 0.36	327 5.35		31 0.87								393	107	USAG DLE
		12-24-61	65	324	7.8					0 0.00	342 5.60		30 0.85								409	129	S. B. Shaw
Ed Alluis Dom. & Irr.	1S/11W-33P1	8-17-61	--	935	7.7	136 6.81	29 2.41	27 1.17	5.1 0.13	0 0.00	323 5.29	187 3.88	46 1.27	14 0.23	0.1 0.01	0.14	17		754	11	461	197	USAG DLE
		12-29-61	--	1000	8.0					0 0.00	254 4.16		64 1.80										

ANALYSES OF GROUND WATER

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(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents c			Total ppm	NC ppm	
						LOWER MOJAVE RIVER VALLEY (6-40) BARSTOW TO YERMO																	
Union Pacific R. R. Mun.	9N/1E- 1M1	8-10-61	72	465	7.3					0 0.00	192 3.14		26 0.73								126	0	Lein
		12-28-61	--	462	7.7					0 0.00	195 3.20		29 0.82								129		S. B.
Grey Phelps Cool Water Ranch Dom. & Irr.	9N/1E-15N2	8- 9-61	--	1187	7.1	107 5.34	23 1.86	114 4.96	3.3 0.08	0 0.00	361 5.92	155 3.22	106 2.99	12 0.19	0.44 0.02				719	41	360	64	S. B.
Stuart C. Slack Dom. & Irr.	9N/2E- 8F1	11-10-61	--	1153	7.8	135 6.74	16.0 1.32	93.0 4.04	2.7 0.069	0 0.00	281 4.60	164 3.41	129 3.64	20.2 0.326	0.48 0.025	0.21			749	332	402	172	S. B.
	9N/2E- 8N2	8- 9-61	--	374	7.5	29 1.45	6.7 0.55	39 1.70	1.2 0.03	0 0.00	159 2.60	27 0.56	19 0.54	2.6 0.04	0.59 0.03	0.10	26		217	46	100	0	S. B.
		12-28-61	68	389	7.8					0 0.00	176 2.88		18 0.51								105	0	S. B.
Yermo Inspection Station	10N/2E-31R1	11-10-61	--	672	8.2	39 1.95	6 0.49	104 4.52	2.7 0.069	0 0.00	173 2.84	96 2.00	57 1.61	21.0 0.339	0.85 .044	0.67			446	643	120	0	S. B.
		12-28-61	--	479	7.9					0 0.00	183 3.00		33 0.93								110	0	S. B.
Dr. Roos Dom.	9N/1W- 4G1	12-21-61	--	627	7.6	58 2.89	9.8 0.81	65 2.83	2.6 0.07	0 0.00	234 3.84	81 1.68	38 1.07	1.0 0.02	0.52 0.03	0.14	23		370	43	185	0	S. B.
Gospel Haven Church Dom.	9N/1W- 9G1	8- 7-61	--	1205	7.5					0 0.00	465 7.62	—	108 3.05								387	7	S. B.
		12-20-61	--	1251	7.4	119 5.94	23 1.89	130 4.66	3.5 0.09	0 0.00	407 6.68	127 2.64	115 3.24	1.0 0.02	0.82 0.04	1.28	28		730	37	391	57	S. B.
Tindall and Pyle	9N/1W-10D1	6-21-61	--	623	8.3	55 2.74	12 0.99	63 2.74	2.7 0.069	10 0.32	186 3.04	90 1.87	45 1.27	2.1 0.034	0.55 0.029	0.12			409	419	185	17.0	S. B.
EBCO, Consumers Oil Co. Irr., Stk.	9N/1W-10D2	8- 9-61	68	636	7.5					0 0.00	205 3.36		44 1.24								191	23	S. B.
		12-21-61	72	.628	7.7					0 0.00	210 3.44		43 1.21								185	13	S. B.

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a			Total ppm	N.C ppm	
						LOWER MOJAVE RIVER VALLEY (6-40) (Continued) BARSTOW TO YERMO																	
Lee Tippett	9N/1W-10G1	8- 9-61	--	1269	7.4	103 5.14	29 2.36	139 6.05	3.7 0.09	0 0.00	322 5.28	261 5.43	99 2.79	6.8 0.11	0.87 0.045	0.22	26		837	44	375	111	S. B.
		12-21-61	--	--	7.7	122 6.09	22 1.81	180 7.83	4.4 0.11	0 0.00	410 6.72	290 6.04	109 3.07	15 0.24	1.1 0.06	0.52	28		940	49	393	57	S. B.
California Electric Power Co.	9N/1W-13H2	3-31-61	--	839	7.6	69 3.45	9 0.75	90 3.91	2 0.05	0 0.00	214 3.50	125 2.60	78 2.20	2 0.03	0.5	0.2	21		503	48	203	35	S. B.
		8- 9-61	--	842	7.4					0 0.00	220 3.60		78 2.20								207	27	S. B.
		12-20-61	--	954	7.9	71 3.54	13 1.07	124 5.39	2.8 0.07	0 0.00	239 3.92	151 3.14	96 2.71	2.5 0.04	0.70 0.04	0.72	25		615	54	232	36	S. B.
				678	7.7	55 2.74	12 0.99	74 3.22	2.3 0.059	0 0.00	205 3.36	108 2.25	49 1.38	3.8 0.061	0.82 0.043	0.30			436	459	187	19	S. B.
R. W. Dickerson Dom. & Irr.	10N/1W-32J1	8- 9-61	--	717	7.3					0 0.00	246 4.04		47 1.33								208	4	S. B.

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as CaCO$_3$: Total ppm	Hardness as CaCO$_3$: NC ppm	Analyzed by c
										COACHELLA VALLEY (7-21)													
Lester Roberson Dom.	5S/7E-16K1	8- 9-61	--	330	8.1	39 1.93	6 0.50	22 0.95	4.1 0.11	0 0.00	171 2.79	23 0.38	9 0.25	0.6 0.01	0.6 0.03	0.01	16		205	27	122	0	USAG
		12-27-61	--	300	8.2					0 0.00	139 2.28		7 0.2								109	0	S. B.
Z. E. Zalay	5S/7E-22K1	8- 9-61	76	974	7.7	134 6.69	20 1.64	43 1.87	7.6 0.19	0 0.00	198 3.24	225 4.69	79 2.23	9.5 0.15	0.62	0.08	25		665	18	416	254	S. B.
		12-27-61	--	867	7.8					0 0.00	173 2.84		74 2.09								359	217	S. B.
Joe Ramirez Dom. & Irr.	5S/7E-33C1	8-10-61	--	1689	7.7					0 0.00	159 2.60		152 4.29								691	561	S. B.
		12-28-61	--	1695	7.6					0 0.00	183 3.00		156 4.40								688	538	S. B.
Mitchell Land and Improvement Co. Dom.	5S/8E-31D1	12-27-61	--	560	8.1	60 2.99	9.8 0.81	36 1.57	5.0 0.13	0 0.00	144 2.36	90 1.88	38 1.07	6.5 0.10	0.41 0.02	0	22		352	29	190	72	S. B.
E. M. Holm Dom.	5S/8E-33N1	8- 9-61	--		7.6					0 0.00	138 2.26		32 0.9								85	0	S. B.
		12-27-61	--		8.2					0 0.00	133 2.18		27 0.76								70	0	S. B.
M. R. Shepard Dom.	6S/8E-7P1S	8- 9-61	--	500	7.4					0 0.00	124 2.05		47 1.33								167	64	USAG
		12-26-61	--	484	7.8					0 0.00	132 2.16		45 1.27								163	55	S. B.
E. H. McCain	6S/8E-10A4	8- 9-61	77	461	7.5	22 1.10	1 0.10	69 3.0	2.7 0.07	0 0.00	92 1.50	74 1.55	37 1.05	2.5 0.04	4.4 0.23	0.02	19		266	70	60	0	UCR
		12-27-61	75	486	8.1	19 0.95	1.1 0.09	79 3.44	2.3 0.06	0 0.00	98 1.60	79 1.64	34 0.96	2.2 0.03	5.6 0.29	0.32	18		290	76	52	0	S. B.
W. C. & J. Stroube Dom.	6S/8E-27H1	8-10-61	--	233	7.2	13 0.63	1 0.05	34 1.48	4.0 0.09	0 0.00	85 1.40	24 0.51	12 0.33	0 0	0.6 0.03	0	12		150	66	34	0	USAG

ANALYSES OF GROUND WATER

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(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
										COACHELLA VALLEY (7-21) (Continued)													
W. C. & J. Stroube (continued)	6S/8E-27H1	12-27-61	--	231	8.6					12 0.40	63 1.04		8 0.23								33	0	S. B.
N. Karahadian Dom. & Irr.	6S/9E-30C1	8- 9-61	--	290	8.8					12 0.40	79 1.30		15 0.42								10	0	USAG
		12-27-61	--	289	8.8					7.2 0.24	79 1.30		15 0.42								17	0	S. B.
Vessey Brothers	7S/8E-22M1	10-30-61	--	1750	7.0	133 6.64	7 0.60	225 9.80	4.5 0.12	0 0.00	24 0.39	265 5.53	380 10.72	11 0.18	0.2 0.01	0.32 0.04	9 14		1233	57	362	342	USAG
						158 7.88	6.7 0.55	252 10.96	6.4 0.16	0 0.00	29 0.48	329 6.85	416 11.73	13.0 0.21	0.50 0.03	0.12	9		1290	56	421	397	S. B.
Charles Crockett Dom. & Irr.	7S/9E-16K1	8-10-61	--	750	7.8	6 0.30	1 0.09	162 7.05	1.0 0.03	0 0.00	202 3.31	96 2.01	68 1.92	0 0	3.5 0.18	0.12	13		524	94	20	0	USAG
		12-27-61	--	741	8.5					41 1.36	132 2.16		74 2.09								18	0	S. B.

ANALYSES OF GROUND WATER

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(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
						ANAHEIM BASIN PRESSURE AREA (8-1.01)																	
Charles Stedman Dom. & Irr.	5S/11W-21M3	3-29-61	--	391	8.5					0 0.00	161 2.64		12 0.34			.04							OCDA
		9- 7-61	--	370	8.2	24 1.20	2 0.20	51 2.22	1.8 0.05	7.3 0.24	151 2.48	3.0 0.62	13 0.37						218	60			OCDA
Anderson Water Co. Dom.	5S/11W-21N2	9- 7-61	--	624	7.9	73 3.64	10 0.82	44 1.91	2.5 0.06	0 0.00	196 3.21	131 2.73	21 0.59			.03			382	30			
		3-29-61	--	609	8.4					0 0.00	195 3.20		20 0.56										OCDA
Arthur Nerio Dom.	5S/11W-21N3	3-21-61	--	774	7.8	86 4.30	14 1.15	42 1.82	2.0 0.05	0 0.00	217 3.55	165 3.44	20 0.55	3.7 0.06	0.5 0.03	0.03	18		450	25	273	95	CES
Harry C. Fulton Dom.	5S/11W-25R2	3-29-61	--	794	7.9					0 0.00	312 5.11		35 1.03										OCDA
Callens Brothers Dom.	5S/11W-28H2	2-21-61	--	390	7.7					0 0.00	220 3.6		14 0.4	1.8 0.03		0.2					50	0	UCR
		3-21-61	--	357	8.4	9.6 0.48	1.9 0.16	68 2.96	4.3 0.11	3.6 0.12	181 2.97	5 0.10	13 0.37			0.26			204	80			OCDA
Balsa Land Co.- Mun.	5S/11W-28K1	3-21-61	--	521						8 0.27	283 4.64		21 0.59										OCDA
		10-10-61	--	513		9.6 0.45	1.7 0.14	1180 5.18	1.6 0.04	12.2 0.41	283 4.64	2.1 0.04	20 0.56			0.33			411	8.9			OCDA
Sunset Land and Water Co. Mun.	5S/11W-29C1	4- 4-61	--	349	8.0					12 0.40	142 2.33		19 0.54										OCDA
		10- 3-61	--	323	8.7					12.2 0.41	148 2.43		14 0.39										OCDA
Signal Oil and Gas Co. Ind.	5S/11W-33H1	3-14-61	--	357	8.4	8.0 0.40	1.0 0.08	71 3.09	1.2 0.03	5 0.17	188 3.08	2 0.04	13 0.37			0.29			249	86			OCDA
		10-17-61	--	357	8.6					9.8 0.33	183 3.00		13 0.37										OCDA

ANALYSES OF GROUND WATER

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(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						ANAHEIM BASIN PRESSURE AREA (8-1.01) (Continued)																	
Jim Bushard Dom.	6S/10W- 7D3	4- 5-61	77	9076	7.4	716 35.80	130 10.82	980 42.60	7.3 0.19	0 0.00	410 6.72	0.5 .01	2947 83.1			.46			5400	47			OCDA
		9-19-61	77	8996	7.2					0 0.00	410 6.72		3091 87.17										OCDA
E. H. Geisler Dom.	6S/10W-18B4	3-31-61	77	3979	7.9					0 0.00	283 4.64		1771 49.94										OCDA
		9-19-61	77	5776	7.8					0 0.00	285 4.67		1752 49.41										OCDA
Anaheim Sugar Co. Irr.	6S/11W- 1B1	10-17-61	77	391	8.6	12.8 .64	0.7 .06	75 3.26	2.7 .07	14.6 .49	138 2.26	22 .46	30 .85			.06			248	31			OCDA
Urban Plavan Irr.	6S/11W- 1J3	3-31-61	77	7261						0 0.00	161 2.64		2190 61.76										OCDA
		9-19-61	77	7261						0 0.00	151 2.43		2167 61.11										OCDA
Huntington Beach Golf Course Irr.	6S/11W- 3R2	3-29-61	77	1412						0 0.00	333 5.46		268 7.56										OCDA
		9-26-61	77	1495		59 2.95	19 1.55	236 10.26	4 0.11	7.3 0.24	326 5.34	3 .06	309 8.71			0.34			811	69			OCDA

ANALYSES OF GROUND WATER

1961
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
ANAHEIM BASIN PRESSURE AREA (8-1.01) (continued)																							
Signal Oil and Gas Co. Ind.	5S/11W-34F3	3-14-61	--	643	8.6					12 0.40	351 5.75		17 0.48										OCDA
		10-18-61	--	627	8.6	6.8 0.34	0.2 0.02	147 6.39	3.2 0.08	17.1 0.57	346 5.67	12 0.3	20 0.56			0.40			404	94			OCDA
Joseph J. Courreges Dom. & Irr.	5S/11W-36B2	3-31-61	--	489	8.1					0 0.00	207 3.39		19 0.54										OCDA
		9-28-61	--	484	7.9					0 0.00	216 3.54		21 0.59										OCDA
Ivan Harper Dom. & Irr.	5S/11W-36P1	4-11-61	--	2573	7.5					0 0.00	203 3.33		639 18.02										OCDA
		9-29-61		2874	7.5	360 18.00	59 4.92	94 4.09	7.75 0.20	0 0.00	207 3.39	60 1.25	790 22.25			0.10			1736	15			OCDA
Hellman Ranch Irr. & Dom.	5S/12W-12C1	4- 4-61	--	322	8.6					7 0.23	137 2.25		13 0.37										OCDA
		9- 8-61	--	318	8.5	6 0.27	5 0.4	65 2.83	0.9 0.02	13.4 0.44	129 2.11	15. 0.31	13 0.37			0.05			218	90			OCDA
Tidewater Oil Co.	6S/10W- 5N2	4- 5-61	77	1142	7.9	120 6.0	24 2.0	60 2.61	4.3 0.11	0 0.00	242 3.97	44 .92	196 5.52			0.15			647	24			OCDA
William Lamb Irr.	6S/10W- 6B2	4- 5-61	--	547	8.0					0 0.00	212 3.48		25 .71										OCDA
		10-10-61	--	424	8.1	41 2.05	9 .74	40 1.74	2.6 .07	0 0.00	185 3.03	49 1.02	14 .39			0.02			253	38			OCDA
Earl Lamb Irr.	6S/10W- 6H1	12-26-61	66	805	7.8	79 3.97	26 2.07	46 2.00	2.4 0.06	0 0.00	253 4.15	31 0.64	115 3.22	0 0	0.1 0.01	0.12	18		524	25	302	94	OCDA
Walter Lamb Irr.	6S/10W- 6H2	10-17-61	77	598	7.9	69 3.44	11.3 0.93	37 1.61	3.5 .09	0 0.00	239 3.92	35 0.73	50 1.41			0.04			314	27			OCDA
H. J. Lamb Dom.	6S/10W- 6L2	4-10-61	77	9241.	7.3	732 36.60	185 15.42	1020 44.35	20 0.51	0 0.00	420 6.89		3190 89.96						9241	46			OCDA

ANALYSES OF GROUND WATER

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(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ NC ppm	Analyzed by c
						CHINO BASIN (8-2.01)																	
Fontana Union Water Co. Dom. & Irr.	1S/5W- 7N1	2-20-61	--	352	8.0	50 2.50	6 0.49	18 0.78	1.7 0.043	0 0.00	195 3.20	12 0.25	9 0.25	6.6 0.106	0.43 0.023	0.03			211	20.5	160	0	S. B.
S & S Ranch Irr. & Dom.	1S/6W-29R1	4- 3-61	--	415	7.8	57 2.84	5 0.41	22 0.96	1.7 0.043	0 0.00	193 3.16	5 0.10	25 0.71	14.2 0.223	0.23 0.012				256	22.6	162	4	S. B.
		10-12-61	--	420	7.8	57 2.86	5 0.39	24 1.05	2.0 0.04	0 0.00	190 3.13	6 0.13	26 0.72	17.0 0.27	0.1 0.01	0.06	23		288	24	163	6	S. B.
Peach Park Water Co. Dom. & Irr.	1S/7W-28R1	10-27-61	--		7.7	47 2.35	8 0.64	14 0.44					14 0.39	2.3									S. B.
P. J. Crevolin Dom. & Irr.	2S/7W-10M1	6-22-61	--	445	7.9					0 0.00	198 3.24		23 0.65								193	31	S. B.
P. and D. Enrico Dom.	2S/7W-15A1	6-22-61	--	338	7.9					0 0.00	188 3.08		9.0 0.25								141	0	S. B.
C. T. Merrill Dom. & Irr.	2S/7W-21L1	7- 6-61	--	809	7.7					0 0.00	332 5.44		33 0.93								370	98	S. B.
A. Omlin Dom. & Dairy	2S/7W-23E1	6-22-61	--	824	7.6					0 0.00	371 6.08		44 1.24								334	30	S. B.
C. Luginbill Dom.	2S/7W-27A1	6-22-61	--	969	7.5	135 6.74	35 2.88	56 2.43	2.1 0.054	0 0.00	525 8.60	58 1.21	59 1.66	42.8 0.690	0.3 0.014				703	20.1	479	49	S. B.

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ NC ppm	Analyzed by c
						BUNKER HILL BASIN (8-2.06)																	
Delman Water Co. Mun.	1N/4W-29E1	1-12-61	Tnk	585	7.4	84 4.19	19 1.55	17 0.74	3.4 .087	0 0.00	255 4.18	86 1.79	10 .28	12 .19	0.55 .03	0.09	26		418	11	287	78	S. B.
		7-13-61	Tnk	573	7.9	81 4.03	18 1.45	16 0.70	3.1 .08	0 0.00	248 4.06	80 1.67	14 0.41	17 0.28	0.4 .02	0.22	18		366	11	274	71	S. B.
		10-26-61	Tnk	525	7.6	71 3.54	18 1.46	14 0.61	3.0 0.08	0 0.00	251 4.12	51 1.07	8 0.23	9.3 0.15	0.48 0.02	.05	24		324	11	250	44	S. B.
Delman Water Co. Mun.	1N/4W-29F1	1-25-61	Tnk	1240	7.6	212 10.60	38 3.15	12 0.52	7.0 0.18	0 1.00	275 4.50	424 8.83	13 0.50	25 0.40	0.7 .04	0.26	24		938	4	688	463	S. B.
		7-13-61	Tnk	1175	7.6	209 10.47	35 2.88	21 0.90	4.5 0.12	0 0.00	279 4.59	403 3.41	23 0.79	20 0.32	0.4 0.02	0.75	18		972	6	668	438	S. B.
		9-14-61	68	1110	7.5	181 9.05	34 2.80	21 0.90	4.2 0.11	0 0.00	287 4.70	373 7.77	20 0.57	18 0.29	0.5 0.03	0.05	19		774	7.0	593	358	S. B.
Tri-City Rock Co. Ind	1S/3W- 9E2	1-24-61	68	245	7.5					0 0.00	121 1.98		10 0.28								92	0	S. B.
		7-28-61	69	247	7.2	28 1.40	5 0.40	15 0.65	2.5 0.06	0 0.00	112 1.84	14 0.29	14 0.40	3.8 0.06	0.2 0.01	0.16	20		172	26	90	0	USAG
		9-15-61	--	240	7.8	29 1.43	6 0.48	16 0.70	2.1 0.05	0 0.00	140 2.30	6 0.12	7 0.20	4.5 0.07	0.2 0.01				148	26	96	0	USAG
Cook's Orchards Irr.	1S/3W-16A1	9-18-61	--	273		31 1.56	6 0.48	17 0.75	1.9 0.05	0 0.00	122 2.00	129 2.60	8 0.23	2.9 0.05	0.3 0.02	0.05	22		176	27	101	1	USAG
Gage Canal Co. Irr.	1S/4W-13F2	5- 1-61	--	396	7.8	57 2.85	5 0.42	16 0.70	1 .03	0 0.00	183 3	20 0.42	14 0.40	3 0.13	0.3 0.02	10			304	16.4	164		Babcock
		10-19-61	--	451		57 2.85	11 0.92	17 0.74		0 0.00	226 3.70	15 0.31	27 0.75	7 0.11		1.2				16.4	189		Babcock
Mesbur Realty Co. Dom.	1S/4W-13F3	1-24-61	68	331	7.9	28 1.40	18 1.46	14 0.61	2.4 0.06	0 0.00	146 2.40	35 0.72	10 0.28	8.2 0.13	0.36 0.02	0.10	29		201	17	143	23	S. B.
		7-12-61	Tnk	375	7.6	43 2.42	11 0.88	15 0.65	2.7 0.07	0 0.00	156 2.57	48 1.00	14 0.37	8.4 0.13	0.3 0.02	0.17	17		284	16	165	36	USAG

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						BUNKER HILL BASIN (8-2.06) (Continued)																	
Gage Canal Co. Irr.	1S/4W-13G2	3-28-61	62	372	7.5	49 2.45	9 0.74	16 0.70	2.2 0.06	0 0.00	176 2.88	23 0.48	16 0.45	10 0.16	0.50 0.03	0.26	21		220	18	158	14	S. B.
		7-12-61	64	403	7.4	53 2.66	9 0.70	18 0.80	2.2 0.06	0 0.00	177 2.90	18 0.39	22 0.63	9.2 0.29	0.1 0.01	0.36	17		266	19	168	23	USAG
		9-15-61	63	400	8.0	49 2.47	12 1.00	16 0.70	2.1 0.05	0 0.00	178 2.92	25 0.53	17 0.49	10 0.16	0.2 0.01	0.32	16		232	17	174	28	USAG
Gage Canal Co. Irr.	1S/4W-13L1	3-28-61	--	305	7.5	38 1.90	7 0.58	15 0.65	2.1 0.05	0 0.00	146 2.40	21 0.43	6 0.17	13 0.21	0.60 0.03	0.20	18		190	20	124	4	S. B.
		9-15-61	--	295	7.7	46 2.29	4 0.35	14 0.60	1.7 0.04	0 0.00	142 2.33	24 0.50	7 0.17	11 0.18	0.4 0.02	0.06	14		168	18	132	15	USAG

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other constituents a			Total ppm	NC ppm	
						SAN LUIS REY VALLEY, MISSION BASIN (9-7.01)																	
George Nagata Irr., Dom.	11S/4W- 4N1	4-26-61	--	1545	7.5	138 6.89	45 3.70	120 5.22	7 0.17	0 0.00	325 5.32	122 2.54	264 7.44	35.0 0.56	0.5 0.03	0.08	30		1038	33	527	261	S. B.
		9-28-61	--	1480	8.1	130 6.52	43 3.50	118 5.15	5.0 0.13	0 0.00	308 5.05	123 2.57	249 7.02	24.0 0.39	0.2 0.01	0.18	25		940	34	501	248	USAG
K. Johnson Irr.	11S/4W- 5K1	5- 9-61	--	2460	7.45			220 9.57					580 16.8						1610		850		James
		9-27-61	69	2290	7.7	201 10.03	80 6.55	127 5.52	7.6 0.19	0 .00	232 3.80	94 1.95	565 15.93	0.0 0.01	0.32 0.02	0.09	30		1807	25	829	639	S. B.
Mission Acres Irr.	11S/4W- 7J1	5- 9-61	--	1820	7.45			160 6.96					306 8.38						1190		560		James
		9-26-61	68	2356	7.7	179 8.93	64 5.27	209 9.09	8.8 0.23	0 0.00	276 4.52	270 5.62	466 13.14	0.5 0.00	0.42 0.02	0.10	32		1549	39	710	484	S. B.
Academy of the Little Flower Dom. & Irr.	11S/4W- 8J1	4-26-61	--	2724	7.3	187 9.33	70 5.75	306 13.31	6.4 0.16	0 0.00	351 5.76	226 4.71	612 17.26	18.0 0.29	0.6 0.03	0.22	28		1938	47	752	464	S. B.
		9-28-61	72	3270	7.8	209 10.43	95 7.81	341 14.83	5.5 0.14	0 0.00	368 6.04	270 5.62	728 20.53	13.0 0.21	0.50 0.02	0.20	0.06		2105	45	912	610	S. B.
C. S. Starr Dom. & Irr.	11S/4W- 8N3	9-26-61	70	1900		145 7.25	53 4.35	160 6.95	5.0 0.13	0 0.00	269 4.42	207 4.29	347 9.78	0.0 0.0	0.2 0.01	0.2	21		1184	37	580	359	USAG
Mission San Luis Rey Dom.	11S/4W- 8K1	9-28-61	72	2850	8.1	194 9.70	74 6.10	315 13.70	4.5 0.12	0 0.00	354 5.80	244 5.09	651 18.35	12.0 0.20	0.2 0.01	0.41	23		1856	16	790	500	USAG
Clarence Nishizu Dom. & Irr.	11S/4W- 8N1	4-26-61	69	2960	7.5					0 0.00	302 4.95		699 19.70								845	593	CES
		9-26-61	68	2550	7.5	130 6.48	78 6.40	295 12.85	1.8 0.05	0 0.00	170 2.78	173 3.59	670 18.90		0.2 0.01	0.28	5		1706	50	644	505	USAG
City of Oceanside Mun.	11S/4W-18L3	4-26-61	68	2334	7.6	205 10.23	79 6.49	204 8.87	7.4 0.19	0 0.00	346 5.68	505 10.52	338 9.53	1.9 0.03	0.56 .029	0.10	28		1605	31	969	683	S. B.
		10- 3-61	63	2521	7.4	238 11.88	91 7.50	200 8.70	8.0 0.20	0 0.00	349 5.72	639 13.31	310 8.74	0.7 0.01	0.58 0.03	0.13	32		1781	36	590	358	S. B.

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
						SAN LUIS REY VALLEY, MISSION BASIN (9-7.01) (Continued)																	
Carlsbad Mutual Water Co. Mun.	11S/4W-18L4	4-26-61	69	1840	8.0	113 5.65	75 6.15	156 6.80	7.0 0.18	0 0.00	284 4.65	214 4.45	330 9.30	8.1 0.13	0.6 .030	0.08	32		1066	36	590	358	CES
St. Charles Priory Dom.	11S/5W-13L1	3-31-61	70	2475	7.6	216 10.80	83 6.81	212 9.20	9.0 0.24	0 0.00	336 5.50	412 8.59	464 13.07	0.0 0.0	0.2 0.01	0.24	23		1988	34	881	606	Lein
		9-27-61	70	2634	7.4	219 10.93	94 7.73	217 9.44	9 0.22	0 0.00	337 5.52	484 10.08	434 12.24	1.0 0.01	0.5 0.02	0.11	34		1912	33	933	657	Tann
City of Oceanside Mun.	11S/5W-13Q1	3- 3-61	--	5670	7.35	376 18.8	192 15.8	550 23.9		0 0.00	280 4.58	360 7.49	1500 42.3	0.0 0.0	0.4 .02	0.00	16		3136	41	1730		James
		9-27-61	64	6313	6.9	478 23.85	207 17.05	545 23.71	16 0.40	0 0.00	292 4.78	317 6.61	1840 51.89	1 0.01	0.4 0.02	0.10	30		4730	36	2045	1806	S. B.

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
								EL CAJON VALLEY (9-16)															
Russel Segal Dom.	15S/1E-31R1	4-25-61	72	1477	7.2	83 4.14	42 3.45	178 7.74	4.0 0.10	0 0.00	185 3.04	203 4.23	216 6.09	115 1.85	0.9 0.05	0.06	44		987	50	378	226	S. B.
		10-23-61	--	1100	7.3	64 3.20	25 2.05	128 5.55	1.3 0.03	0 0.00	160 2.61	134 2.81	170 4.77	35.0 0.56	0.6 0.03	0.14	43		704	51	263	132	USAG
Jack Graves Dom.	16S/1W- 1G1	4-25-61	--	1898	7.2					0 0.00	283 4.62		223 6.30								668	436	S. B.
		10-23-61	--	1950	7.1					0 0.00	282 4.62		223 6.30								679	448	USAG
Bob Glib Dom.	16S-1W- 2K6	5- 2-61	--	1897	7.7	117 5.84	51 4.18	204 8.87	1.4 0.03	0 0.00	273 4.48	142 2.96	358 10.10	95.0 1.53	0.61 0.03	0.08	54		1181	47	501	277	S. B.
		10-23-61	--	2000	7.0					0 0.00	283 4.65	376 10.60									550	317	USAG
City of El Cajon Dom.	16S/1W- 3C2	4-25-61	--							0 0.00	176 2.88		312 8.80								313	169	S. B.
		10-23-61	--	1810	6.8					0 0.00	183 3.00		741 12.15								403	253	USAG

ANALYSES OF GROUND WATER

1961

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Percent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
							TIA JUANA VALLEY BASIN (9-19)																
Calif. Water and Telephone Co. Test	18S/2W-32H1	4-24-61	72	11200	7.9	529 26.4	333 27.4	1449 63.0	14 0.36	0 0.00	549 9.0	712 14.82	3337 94.10	23.0 0.37	0.7 0.037	0.65	24		7543	54	2690	2240	CES
	18S/2W-32P4	4-24-61	69	25,50	7.1	673 33.6	832 68.4	4024 175.0	98 2.50	0 0.00	287 4.70	1149 23.92	9006 254.0	16.0 0.25	0.60 0.03	0.80	23		17648	63	5100	4865	CES
		10-23-61	68	24500	7.2	696 34.75	820 67.50	4840 210.50	120 3.10	0 0.00	302 4.95	1337 27.84	1000 28.2	0.0 0.0	0.2 0.01	1.0	19		23642	68	5113	4865	USAG
James Jackson Irr.	18S/2W-33K4	4-25-61	69	3580	7.6					0 0.00	431 7.07		652 18.40								1026	672	Lein
		10-24-61	68	3550	7.5					0 0.00	418 6.85		670 18.90								1025	682	USAG
Henry Schaffner Irr.	18S/2W-35L1	5- 2-61	72	3058	8.0					0 0.00	376 6.16		730 20.59								599	291	S. B.
		11-28-61	70	3300	7.3	206 10.3	52 4.30	475 20.65	3.0 0.08	0 0.00	384 6.30	313 6.52	789 22.25	0.0 0.0	0.2 0.01	0.55	21		2226	59	730	415	USAG
Henry Schaffner Irr.	19S/2W-2E1	4-25-61	69	3390	7.4	210 10.50	82 6.75	409 17.80	8 0.20	0 0.00	360 5.90	361 7.52	722 20.35	69.0 1.12	1.0 0.05	0.22	22		2137	50	863	568	CES
Calif. Water and Telephone Co. Test	19S/2W- 5C6	4-25-61	71	23500	6.8	754 37.6	630 51.8	3749 163.0	39 1.0	0 0.00	323 5.30	1105 23.00	8013 226.0	19.0 0.31	0.5 0.024	0.70	21		16027	64	4470	4205	CES
		10-25-61	68	20500	7.1	643 32.10	557 45.75	4040 175.50	106 2.71	0 0.00	125 2.05	959 19.96	8390 236.50	0.0 0.00	0.1 0.01	0.75	7		19724	68	3893	3790	USAG
Knox Dairy Irr.	19S/2W- 5G18	6-15-61	70	7180	7.0	319 15.90	191 15.68	927 40.30	8.0 0.20	0 0.00	290 4.75	431 8.97	2060 58.10	18.0 0.29	1.0 0.051	0.41	18		4514	56	1579	1342	CES
		10-25-61	69	7000	7.6	361 18.00	186 15.25	893 38.85	12 0.31	0 0.00	299 4.89	474 9.86	2039 57.50	0 0	0.3 0.02	0.67	16		5966	54	1663	1418	USAG

FOOTNOTES FOR ANALYSES OF GROUND WATER

a. Fe - Iron
Al - Aluminum
As - Arsenic
Cu - Copper
NH_4 - Ammonium
Pb - Lead
Mn - Manganese
Zn - Zinc
Cr - Chromium
H_2S - Hydrogen Sulfide
PO_4 - Phosphate
Sr - Strontium
ABS - Alkyl Benzene Sulfonate

b. Gravimetric Determination

c. Analysis by DWR TAMM Shaw Shatto 5050 - Department of Water Resources
Term TTL - Terminal Testing Laboratories, Inc.
Lein USAG DLE 5788 - United States Agricultural Advisors
SBCOFCD - San Bernardino County Flood Control District
OCDA - Orange County Department of Agriculture
FGL - Fruit Growers Laboratory
Smith - Smith Emery Laboratories
Babcock - Babcock Laboratories
James - James Laboratories
CES UCR - University of California, Riverside
LACFCD - Los Angeles County Flood Control District

TABLE B-3

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
CENTRAL COASTAL REGION (NO. 3)		
Santa Maria River Valley (3-12)		
SBB&M	3- 8-61	0.0 ± 1.9
9N/32W-17G1	3- 8-61	0.0 ± 1.9
- 9A1	3- 8-61	2.7 ± 2.6
-12R1	3- 8-61	0.0 ± 1.9
10N/34W-21R1	3- 8-61	0.0 ± 2.0
10N/36W- 261	11- 7-61	4.2 ± 1.4
-14R1	11- 7-61	7.2 ± 2.2
11N/35W-26M1	3- 9-61	7.0 ± 3.0
11N/36W-13R1	3- 9-61	1.7 ± 1.9
Cuyama Valley (3-13)		
10N/25W-20H1	4- 7-61	4.0 ± 2.0
-21G1	4- 7-61	0.0 ± 1.9
-22E1	4- 7-61	0.0 ± 1.9
-22E1	4-19-61	0.0 ± 1.8
-23E1	4- 7 61	0.0 ± 1.9
10N/26W- 4R1	4- 7-61	0.1 ± 1.9
- 9R3	4- 7-61	0.0 ± 1.9
- 9R3	6-26-61	0.0 ± 1.9

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Cuyama Valley (3-13) (continued)		
-14C4	4- 7-61	0.0 ± 1.9
-23P1	4- 7-61	0.0 ± 1.5
LOS ANGELES REGION (NO. 4)		
Oxnard Plain Pressure Area (4-4.01)		
SBB&M		
1N/21W- 9M1	6-16-61	0.9 ± 0.5
-30A1	6-16-61	1.8 ± 0.7
-30A1	12-13-61	0.0 ± 2.2
-31A1	12- 6-61	45.6 ± 2.5
1N/22W- 3F4	6-17-61	1.4 ± 0.6
- 3F4	12-12-61	0.0 ± 2.2
- 8K3	6-15-61	3.8 ± 0.9
- 8K3	12- 5-61	14.1 ± 1.6
-16Q1	11-28-61	5.4 ± 1.8
-17J2	11-17-61	5.8 ± 1.9
-17M3	11-17-61	6.0 ± 1.9
-17Q1	5-16-61	8.8 ± 1.4
-17Q1	11-15-61	7.2 ± 2.1
-18E1	6-15-61	0.8 ± 0.6

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Oxnard Plain Pressure Area (4-4.01) (continued)		
-18E1	12- 5-61	50.6 ± 2.7
-19H1	12- 5-61	13.8 ± 1.5
-19H1	5-22-61	1.2 ± 1.0
-19H1	11-28-61	2.0 ± 1.3
-20E1	5-22-61	1.4 ± 1.1
1N/22W-20E1	10-31-61	0.7 ± 1.8
-20E1	11-29-61	8.5 ± 2.5
-20N2	5-18-61	0.9 ± 0.9
-20N2	11-29-61	1.1 ± 0.7
-20R1	5-15-61	1.2 ± 1.1
-20R1	11-17-61	1.7 ± 1.8
-21H1	6-15-61	6.9 ± 1.1
-21L1	5-19-61	2.0 ± 0.8
-21L1	5-23-61	25.2 ± 2.4
-21L1	11-22-61	2.5 ± 1.1
-21L2	11-22-61	2.2 ± 1.0
-22F2	12- 5-61	31.7 ± 2.3
-23C1	6-16-61	0.9 ± 0.5
-26A1	6-14-61	14.3 ± 1.8
-26A1	12-12-61	0.0 ± 2.1

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Oxnard Plain Pressure Area (4-4.01) (continued)		
-26M1	5-23-61	2.9 ± 1.7
-26M1	11-21-61	4.8 ± 1.6
-27B4	5-18-61	3.0 ± 1.7
-27R1	5-17-61	5.5 ± 2.1
-27R1	5-17-61	1.0 ± 0.5
1N/22W-27R1	11-10-61	1.6 ± 0.8
-27R1	11-10-61	0.5 ± 0.4
-28A2	6-16-61	0.3 ± 0.5
-28B1	5-17-61	6.1 ± 2.3
-28B1	11-13-61	7.3 ± 1.8
-28H2	12-13-61	3.93 ± 2.2
2N/22W-27M2	6-14-61	4.3 ± 0.9
-27M2	12-12-61	0.0 ± 2.2
2N/23W-25Q1	10-10-61	1.1 ± 0.6
West Coast Basin (4-11.02)		
Santa Monica Bay Area		
3S/14W-30H2	6-26-61	7.3 ± 1.2
-30H2	12- 5-61	1.0 ± 0.5
3S/15WB2	3-24-61	2.6 ± 1.2

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
West Coast Basin		
Hawthorne-Gardena Area (4-11.02)		
3S/13W-31F1	3-23-61	1.1 ± 1.3
3S/14W-25K4	3-21-61	2.2 ± 0.9
-25K4	12- 1-61	4.7 ± 1.4
-27C1	3-21-61	3.9 ± 1.0
-27C1	12- 1-61	2.6 ± 1.0
-35M5	3-21-61	9.6 ± 2.1
-35M5	12- 1-61	4.5 ± 1.2
Torrance Area (4-11.02)		
4S/13W- 6Q1	3-21-61	0.3 ± 1.1
- 6Q1	11-21-61	4.4 ± 1.4
4S/14W- 9Q1	3-23-61	3.1 ± 1.2
- 9Q1	11/22-61	2.4 ± 1.0
-16L2	3-21-61	6.7 ± 1.1
-16L2	10-19-61	5.7 ± 1.3
-35E1	3-28-61	2.6 ± 1.3
-35E1	11-29-61	10.9 ± 1.5

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

Central Basin Pressure Area (4-11.03)
and Los Angeles Forebay Area (4-11.04)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
2S/13W-10P4	12-20-61	1.8 ± 2.7
-14M1	8-17-61	1.3 ± 0.5
-14M1	12-20-61	0.0 ± 2.2
-15N3	8-17-61	2.2 ± 0.7
-15N3	12-19-61	1.47 ± 2.2

Main San Gabriel Basin (4-13.01)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
1S/10W- 7A1	8-18-61	2.7 ± 0.6
-10C1	8-18-61	1.3 ± 0.7
-10C1	12-22-61	0.5 ± 1.9
-10C1	12-24-61	0.0 ± 2.2
-19N1	8-18-61	4.5 ± 0.9
-19N1	12-29-61	3.46 ± 2.2
1S/11W- 2G1	12-29-61	0.0 ± 2.2
-10F1	8-17-61	3.8 ± 0.9
-14M1	8-17-61	1.1 ± 0.5
-25Q1	12-24-61	0.08 ± 2.2
-26K1	8-17-61	1.5 ± 0.6
-26K1	12-21-61	8.8 ± 2.0

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Main San Gabriel Basin (4-13.01) (continued)		
-26K1	12-24-61	3.63 ± 2.2
-32C1	8-17-61	1.3 ± 0.4
-32C1	12-29-61	0.0 ± 2.2
-33P1	8-17-61	4.0 ± 0.9
-33P1	12-24-61	3.82 ± 2.2

[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

LAHONTAN REGION (NO.6)

Lower Mojave River Basin (6-40)
Barstow to Yermo

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
9N/1E- 1M1	8-10-61	7.5 ± 0.7
- 1M1	12-28-61	2.44 ± 2.2
-15N2	8- 9-61	9.3 ± 1.4
-15N2	12-21-61	8.3 ± 2.2
9N/2E-18N2	8- 9-61	8.1 ± 2.0
9N/1W- 9G1	8- 9-61	8.0 ± 1.1
-10D1	12-21-61	0.0 ± 2.2
-10G1	8- 9-61	23.6 ± 4.8
-10G1	12-21-61	12.4 ± 2.2
-13M2	8- 9-61	4.3 ± 0.8
-13M2	12-20-61	0.83 ± 2.2

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
COLORADO RIVER BASIN REGION NO. 7		
Coachella Valley (7-21) South End		
5S/7E-16K1	10-27-61	9.5 ± 1.5
-16K1	12-27-61	3.92 ± 2.2
-22K1	8- 9-61	5.1 ± 0.9
-22K1	12-27-61	7.28 ± 2.3
-33C1	8-10-61	9.5 ± 1.6
-33C1	12-28-61	3.68 ± 2.2
5S/8E-33N1	8- 9-61	4.6 ± 0.9
-33N1	12-27-61	0.0 ± 2.1
6S/8E- 7P1	8- 9-61	4.5 ± 0.9
- 7P1	12-27-61	3.6 ± 2.2
-10A3	8- 9-61	9.8 ± 1.7
-10A3	12-17-61	0.0 ± 2.1
-27H1	8-10-61	29.3 ± 2.1
-27H1	12-27-61	2.5 ± 2.2
6S/9E-30C1	8- 9-61	0.9 ± 0.5
-30C1	12-27-61	0.0 ± 2.2
7S/8E-22M1	8-10-61	17.7 ± 2.0
-22M1	12-28-62	0.0 ± 2.2

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Coachella Valley (7-21) South End (continued)		
7S/9E-16K1	8-10-61	11.9 ± 2.3
-16K1	12-27-61	5.98 ± 2.2

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

SANTA ANA REGION NO. 8

Anaheim Basin Pressure Area (8-1.01)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
6S/10W- 6L3	5- 8-61	3.1 ± 1.1
- 6L3	12- 8-61	27.1 ± 2.3
6S/10W- 7B2	5- 1-61	0.7 ± 0.5
6S10W - 7J4	5- 5-61	2.5 ± 0.9
- 7J4	12- 7-61	20.2 ± 1.3
- 7M3	5- 8-61	6.7 ± 1.8
- 7Q3	9-21-61	2.6 ± 0.9
- 8K1	5- 1-61	0.6 ± 0.5
- 8K1	12- 7-61	37.1 ± 1.4
-13C2	5- 4-61	7.0 ± 2.1
-17M2	5- 2-61	7.4 ± 2.7
-17M2	12- 4-61	21.8 ± 2.1
-18A1	12- 7-61	32.2 ± 1.5
-18K7	5- 3-61	1.4 ± 0.7
-18K7	12-28-61	4.7 ± 1.2
-18P1	5- 2-61	2.1 ± 1.4
-18P1	12- 6-61	11.4 ± 2.8
6S/11W- 1P2	5- 3-61	1.0 ± 0.6

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Anaheim Basin Pressure Area (8-1.01) (continued)		
-13C2	12- 5-61	5.2 ± 1.0
-13D1	12-18-61	22.1 ± 2.2
Chino Basin (8-2.01)		
2S/7W-10M1	6-22-61	0.7 ± 0.5
-15A1	6-22-61	2.0 ± 0.7
-21L1	6-22-61	2.7 ± 0.8
-23E1	6-22-61	2.6 ± 0.9
-27A1	6-22-61	3.8 ± 0.9
-27A1	7-11-61	18.9 ± 1.9
Bunker Hill Basin (8-2.06)		
1S/3W- 1M1	6-19-61	11.3 ± 2.2
- 6L1	2- 7-61	9.9 ± 1.9
- 9E2	5-28-61	3.7 ± 1.1
-17C3	3-28-61	48.6 ± 5.2
-19G2	3-28-61	2.0 ± 1.0
-31M1	2- 9-61	7.8 ± 1.7
1S/4W-13F3	1-23-61	4.7 ± 1.8
-13F3	3-28-61	1.9 ± 1.2

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l°
Bunker Hill Basin (8-2.06) (continued)		
-13F3	7-12-61	4.5 ± 0.9
-13G1	3-28-61	12.1 ± 2.8
-13L1	3-28-61	3.0 ± 1.1
-25E1	2-10-61	11.6 ± 2.2
-25E1	7-31-61	7.5 ± 1.1
-29E1	3-28-61	3.4 ± 0.7
-29F1	1-25-61	5.9 ± 1.2
-29F1	3-28-61	5.4 ± 2.0
-29P2	1-25-61	2.0 ± 1.2
-29P2	7-13-61	6.7 ± 1.1
1N/5W-23A1	1-25-61	9.4 ± 3.2
-23A2	3-29-61	1.3 ± 0.6

° MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
SAN DIEGO REGION NO. 9		
San Luis Rey Valley Mission Basin (9-7.01)		
11S/4W- 4N1	4-26-61	7.7 ± 2.0
- 8H1	4-26-61	0.0 ± 2.9
- 8J1	4-26-61	1.6 ± 1.9
- 8J1	10-30-61	20.4 ± 1.8
- 8N1	4-26-61	2.2 ± 1.9
- 8N1	10-30-61	3.1 ± 0.9
-18C1	4-26-61	9.3 ± 2.0
-18L4	4-26-61	0.0 ± 1.8
11S/5W-13L4	3-26-61	0.1 ± 0.9
-13L4	10-30-61	8.3 ± 1.4
El Cajon Valley Basin (9-16)		
16S/1W- 1G1	4-25-61	0 ± 1.9
- 1G1	10-23-61	2.7 ± 0.9
- 2K6	4-25-61	0.6 ± 1.9
- 2K6	10-23-61	5.4 ± 1.1
- 3C2	10-23-61	19.8 ± 1.7
- 3E1	4-25-61	6.1 ± 2.1
- 3E1	10-23-61	10.7 ± 1.5

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
El Cajon Valley Basin (9-16) (continued		
-11P4	4-25-61	0 ± 1.8
-11P4	10-23-61	2.2 ± 0.9
-12J3	4-25-61	0 ± 1.9
-12J3	10-23-61	2.9 ± 0.9
-15K2	4-25-61	1.3 ± 1.9
-15K2	10-23-61	2.5 ± 0.6
15S/1E-31R1	4-25-61	0.0 ± 1.9
-31R1	10-23-61	14.1 ± 1.8
Tia Juana Valley Basin (9-19)		
18S/2W-32H1	4-24-61	0.0 ± 1.8
-32P4	4-24-61	0.0 ± 1.7
-32P4	10-23-61	20.0 ± 1.9
-32P4	10-23-61	2.6 ± 1.0
-32Q1	4-26-61	0 ± 1.8
-32Q1	10-24-61	12.5 ± 1.7
-33K4	4-25-61	0.1 ± 1.9
-33K4	10-24-61	8.0 ± 2.3
-33M4	4-26-61	0.0 ± 1.8
-35L1	4-25-61	1.5 ± 1.9

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[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Tia Juana Valley Basin (9-19) (continued		
-35L1	10-24-61	6.8 ± 2.1
19S/2W- 1E4	4-26-61	0.9 ± 0.5
- 2E1	4-25-61	0.0 ± 1.9
- 4A5	4-25-61	0.0 ± 1.9
- 5A3	4-24-61	3.7 ± 1.1
- 5A3	4-24-61	0.6 ± 0.5
- 5B6	10-24-61	4.1 ± 1.2
- 5B6	10-24-61	3.5 ± 1.2
- 5C6	4-25-61	0.0 ± 1.7
- 5C6	10-25-61	0.7 ± 0.5
- 5C6	10-25-61	0.2 ± 0.4
-5G18	4-25-61	0.7 ± 0.5
19S/2W-5G18	10-25-61	2.5 ± 1.1
- 5L2	4-25-61	0.0 ± 1.3
- 5L2	10-25-61	8.5 ± 1.4

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[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION.

ANALYSES OF GROUND WATER

1962

TABLE B-4

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
							SANTA	MARIA	RIVER	VALLEY	(3-12)												
W. E. Houke Estate Dom.	9N/33W- 9A1	6-13-62	--	640	7.4			88 3.83		0 0.00	52 0.85		144 4.06	22 0.36							93	50	USAG
Mattia Borgunda Irr.	9N/34W- 9E1	6-15-62	65	728	7.3					0 0.00	98 1.60		117 3.30								205	125	UCR
E. H. Moore Irr.	10N/34W-19H1	9-20-62	64.8	1360	7.8	143 7.15	68 5.55	76 3.30	3.5 0.09	0 0.00	275 4.52	411 8.56	91 2.55	15 0.25	0.40 0.02	0.24	22		1100	20	635	409	5788
Union Sugar Company Irr. & Stk.	10N/35W- 5J1	6-14-62	62	1480	8.1	123 6.17	75 6.17	78 3.40	5.6 0.14	0 0.00	235 3.85	475 9.88	71 2.01	23 0.37	0.4 0.02	0.09	24		1016	15	617	424	USAG
		9-20-62	62.9	1330	8.1	132 6.60	73 5.96	70 3.05	3.4 0.09	0 0.00	232 3.80	475 9.89	67 1.91	22 0.35	0.6 0.03	0.20	25		1124	19	628	438	5788
Mary J. Ellis Dom. & Irr.	10N/35W- 7F1	9-20-62	63.6	1780	7.4	222 11.10	89 7.28	83 3.60	3.4 0.09	0 0.00	287 4.70	689 14.35	116 3.28	4.0 0.07	0.4 0.02	0.24	28		1470	16	919	684	5788
Frank Silva Dom. & Irr.	11N/34W-19Q1	9-20-62	84.2	780	8.1	72 3.60	33 2.69	52 2.23	2.8 0.07	0 0.00	195 3.20	176 3.67	64 1.80	4.0 0.07	0.2 0.01	0.13	27		584	26	310	150	5788
Union Sugar Company Irr.	11N/35W-33F1	6-14-62	60	1860	7.6			100 4.35		0 0.00	447 7.33		99 2.77								923	556	USAG
Mary B. Enos Dom.	11N/36W-13R1	8-22-62	--	1266	7.6	137 6.84	56 4.62	72 3.13	3.5 0.09	0 0.00	249 4.08	452 9.41	40 1.13	0.5 0.01	0.5 0.03	0.21	39		993	21	573	369	5050
		9-20-62	61.6	1220				91 3.95		0 0.00	258 4.24										568	356	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
								CUYAMA VALLEY (3-13)															
H. S. Russell Irr.	10N/25W-20H1	6-14-62	61	1870	7.7	277 13.80	90 7.36	71 3.10	4.0 0.10	0 0.00	184 3.01	989 20.61	14 0.39	6.0 0.10	1.0 0.05	0.18	14		1622	13	058	906	USAG
		11-13-62	62	1750	7.6	250 12.51	95 7.76	68 2.95	3.7 0.10	0 0.00	189 3.10	963 20.05	14 0.39	5.0 0.08	1.0 0.05	0.27	15		1602	13	1014	859	DLE
E. H. Mettler & Sons Irr.	10N/25W-22E1	6-14-62	62	2050	7.8	291 14.50	99 8.16	80 3.47	4.0 0.10	0 0.00	189 3.10	1083 22.55	19 0.52	15.0 0.25	1.0 0.05	0.13	21		1810	13	1133	978	USAG
		9-25-62	62	1950	7.6	296 14.75	92 7.58	79 3.43	4.7 0.12	0 0.00	186 3.05	1082 22.53	18 0.49	16.0 0.27	0.8 0.04	0.23	18		1808	13	1117	964	DLE
E. H. Mettler & Sons Dom. & Irr.	10N/25W-23E1	6-14-62	--	2110	8.1	238 11.90	72 5.90	1.65 7.17	5.6 0.14	0 0.00	139 2.28	933 19.42	135 3.81	4.0 0.07	0.4 0.02	1.2	20		1946	29	890	776	DLE
		9-25-62	70	2000	7.5	239 11.95	72 5.93	143 6.20	4.9 0.13	0 0.00	144 2.36	834 17.37	133 3.74	4.0 0.07	0.6 0.03	1.14	45		1702	26	894	776	DLE
Earl Roscamp Irr.	10N/25W-30F2	6-14-62	--	1755	7.6	215 10.76	102 8.35	66 2.87	6.8 0.17	0 0.00	181 2.97	900 18.75	17 0.48	18.0 0.29	0.8 0.04	0.18	19		1486	13	956	807	DLE
		9-25-62	63	1650	7.6	234 11.68	91 7.54	70 3.05	3.9 0.10	0 0.00	183 3.00	914 19.02	17 0.48	15 0.24	0.8 0.04	0.14	14		1536	14	961	811	DLE
Adolph Kirshenmann Irr.	10N/25W-32H1	6-14-62	62	1725	7.6	201 10.05	107 8.80	67 2.90	4.6 0.12	0 0.00	183 3.00	869 18.09	22 0.62	32 0.52	0.8 0.04	0.22	17		1 00	13	943	793	DLE
		9-25-62	62	1600	7.5	230 11.50	90 7.38	69 3.00	3.4 0.09	0 0.00	186 3.05	868 18.06	21 0.59	23 0.37	1.0 0.05	0.12	13		1478	14	944	791	DLE
Hubert Russell Dom. & Irr.	10N/26W- 4R1	6-14-62	62	1823	7.6					0 0.00	162 2.65		35 1.00								950	818	UCR
		9-25-62	--	1700	7.7	253 12.60	84 6.94	93 4.05	4.2 0.11	0 0.00	183 3.00	969 20.19	29 0.82	1.8 0.03	0.8 0.04	0.47	16		1588	17	977	827	DLE
Cuyama Ranch Stock	10N/26W-14C1 2, and 3.	6-14-62	65	1930	8.1					0 0.00	189 3.10		18 0.50								1110	955	UCR
		9-25-62	--	1820	7.5	265 13.22	96 7.87	80 3.47	4.4 0.11	0 0.00	189 3.10	999 20.81	17 0.48	3.3 0.05	1.0 0.05	0.12	15		1748	14	1055	900	DLE

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
						CUYAMA VALLEY (3-13) (continued)																	
H. Russell Irr.	10N/26W-14C4	6-14-62	62	1858	8.0	269 13.40	96 7.90	71 3.10	3.9 0.10	0 0.00	180 2.95	984 20.48	18 0.50	12 0.20	0.9 0.047	0.11	19		1660	13	1065	918	UCR
		9-25-62	63	1800	7.3	279 13.90	91 7.46	74 3.20	3.9 0.10	0 0.00	197 3.23	994 20.71	21 0.59	6.5 0.11	1.0 0.05	0.12	14		1674	13	1068	906	DLE
S. Germain & Neil Carter Irr.	10N/26W-21Q2	6-14-62	82	1240	8.2	84 4.22	19 1.56	175 7.60	4.8 0.12	0 0.00	242 2.97	494 10.28	16 0.44	1.0 0.02	0.6 0.03	0.31	35		922	56	291	142	DLE
W. Smith Dom. & Irr.	10N/27W-11C1	6-14-62	--	4330	7.8	509 25.40	304 25.00	368 16.00	5.4 0.14	0 0.00	329 5.40	2767 57.61	85 2.40	17 0.28	0.3 0.02	0.24	29		4740	24	2520	2250	UCR
		10-10-62	--	4400	7.7	561 28.00	274 22.50	365 15.87	32.5 0.83	0 0.00	406 6.65	2750 57.07	175 4.92	4.0 0.06	0.4 0.02	0.42	23		4810	24	2525	2192	DLE

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
						OXNARD PLAIN PRESSURE AREA (4-4.01)																	
Ed Murhardt Irr. & Dom.	1N/21W-30A1	5- 9-62	60	980	8.1					0 0.00	279 4.59		40 1.13								345	116	USAG
		11-21-62	--	1120	8.2	135 6.73	44 3.60	95 4.13	4.2 0.11	0 0.00	259 4.25	429 8.95	52 1.47	7.0 0.12	0.6 0.03	0.50	21		962	28	517	304	5788
Point Mugu Game Reserve Irr.	1N/21W-31A1	5- 9-62	Tank	1090	8.1	115 5.77	36 2.95	89 3.87	4.0 0.10	0 0.00	254 4.16	354 7.37	38 1.06	1.9 0.03	0.3 0.02	0.65	29		858	30	436	218	USAG
		11-20-62	Tank	1010	7.9	99 4.95	48 3.99	79 3.43	3.5 0.09	0 0.00	254 4.16	356 7.43	37 1.02	2.0 0.03	0.4 0.02	0.55	29		842	28	447	239	5788
J. A. Alvarez, Jr. Irr. & Dom.	1N/22W- 8K3	6-25-62	Tank	1140	8.0					0 0.00	256 4.20		42 1.19								465	255	USAG
		6-19-62	--	1220	7.8	117 5.86	44 3.58	88 3.83	6.3 0.16	0 0.00	263 4.31	387 8.07	43 1.20	0 0	0.8 0.04	0.75	25		856	28	472	356	USAG
		11-20-62	68	1060	8.4	122 6.08	41 3.37	83 3.60	5.0 0.13	9 0.30	261 4.28	397 8.26	43 1.20	1.0 ~~0.02~~	0.8 0.04	0.74	25		956	25	523	294	5788
City of Oxnard Mun.	1N/22W-15B3	6-25-62	70	1350	7.6	139 6.94	46 3.79	88 3.83	4.4 0.11	0 0.00	260 4.26	434 9.05	50 1.41	12 0.20	0.6 0.03	0.70	20		1004	34	537	324	USAG
		6-21-62	--	1280	7.9	100 5.00	62 5.06	100 4.35	5.7 0.15	0 0.00	255 4.19	390 8.13	86 2.42	10 0.16	0.4 0.02	0.60	23		1002	30	503	293	USAG
		11-20-62	68	1250	7.7	141 7.04	41 3.36	94 4.10	3.3 0.08	0 0.00	270 4.44	421 8.77	48 1.35	4.0 0.06	0.6 0.03	0.66	25		940	28	520	298	5788
Hollywood Beach Resort Mun.	1N/22W-18E1	6-22-62	--	1190	8.1	129 6.47	41 3.43	87 3.80	5.6 0.14	0 0.00	257 4.21	391 8.25	52 1.45	0 0	0.8 0.04	0.90	25		964	27	495	284	USAG
		11-20-62	--	1160	7.6	123 6.14	45 3.76	82 3.55	4.7 0.12	0 0.00	239 3.92	410 8.54	46 1.27	0 0	0.8 0.04	0.74	34		972	26	495	299	5788
Silver Strand Water Co. Dom.	1N/22W-19H1	4-18-62	66	6035	7.3	272 13.56	207 17.04	770 33.50	23 0.60	0 0.00	37 0.60	373 7.77	1975 55.62	0 0	0.47 0.02	0.72	4		3940	52	1530	1500	TTL
		11-26-62	66	7500	7.5	449 22.40	226 18.60	1050 45.65	23 0.59	0 0.00	62 1.02	487 10.14	2642 74.50	0 0	0.2 0.01	0.95	6.0		5624	52	2050	1999	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ N.C. ppm	Analyzed by c
						Mineral constituents in parts per million / equivalents per million																	
						OXNARD PLAIN PRESSURE AREA (4-4.01) (Continued)																	
Silver Strand Water Co. Dom.	1N/22W-20E1	4-18-62	66	10620	7.2	799 39.87	262 21.61	1125 48.94	13 0.33	0 0.00	12 0.20	518 10.79	3480 98.14	4.9 0.08	0.48 0.02	0.73	2		8080	44	3074	3064	S. B.
		10-16-62	66	8400	6.8	635 31.80	247 20.30	1100 47.83	35 0.90	0 0.00	21 0.35	467 9.72	3209 90.50	0 0	0.2 0.01	0.77	3.0		6836	47	2605	2587	5788
U. S. Navy Obs.	1N/22W-20R1	10-10-62	66	10400	7.2	1290 64.25	426 35.00	750 32.60	35 0.90	0 0.00	220 3.60	704 14.67	4010 113.00	3.0 0.05	0.2 0.01	0.84	23		8674	25	4963	4783	5788
City of Point Hueneme Obs.	1N/22W-21L1	3-21-62	65	10627	7.2	1005 50.15	183 15.04	1100 47.85	20 0.51	0 0.00	32 0.52	216 4.50	3630 102.37	2.5 0.04	0.54 0.03	0.46	2.2		7645	42	3261	3235	S. B.
		3-21-62	65	9460	7.5	860 43.00	292 24.00	944 42.5	15 0.38	0 0.00	226 3.70	624 13.00	3234 91.2	56 0.9	0.4 0.020	0.77	27		6977	39	3350	3165	UCR
		10-16-62	66	6000	7.7	609 30.40	196 16.10	525 22.83	25 0.64	0 0.00	119 1.95	434 9.04	2128 60.00	0 0	0.2 0.01	0.77	12		4524	33	2325	2227	5788
K. L. Varnau Dom.	1N/22W-23C1	5- 4-62	67	1360	7.4	115 5.74	40 3.30	86 3.75	3.7 0.09	0 0.00	209 3.44	374 7.78	60 1.71	0 0	0.7 0.04	0.71	28		926	29	452	280	USAG
		11-21-62	--	1110	7.8	95 4.76	55 4.54	95 4.13	3.5 0.09	0 0.00	265 4.35	379 7.88	39 1.10	0 0	0.6 0.03	0.57	27		966	30	465	247	5788
S. R. Pidduck Dom. & Irr.	1N/22W-26A1	5- 4-62	66	1160	7.6					0 0.00	248 4.06		53 1.50								455	252	USAG
Kalof Pulp and Paper Co. Ind. & Dom.	1N/22W-28H2	6-20-62	66	1160	7.7	117 5.84	41 3.40	76 3.30	4.8 0.12	0 0.00	266 4.36	329 6.84	48 1.36	0 0	0.8 0.04	0.75	24		830	26	462	244	USAG
		6-25-62	--	1115	8.2	129 6.46	40 3.33	84 3.65	4.7 0.12	0 0.00	257 4.21	382 7.96	51 1.42	0 0	0.6 0.03	0.72	14		822	27	490	279	USAG
		11-20-62	--	900	1.1	60 3.00	33 2.67	90 3.90	1.9 0.05	0 0.00	139 2.29	288 6.01	55 1.55	0 0	0.4 0.02	0.52	12		662	40	284	69	5788
Brightview Oasis Motel Dom.	2N/22W-27M2	6-25-62	Tank	1360	7.8	136 6.82	63 5.24	83 3.60	4.8 0.12	0 0.00	274 4.50	465 9.68	88 2.49	15 0.24	0.6 0.03	0.60	24		1060	23	603	378	USAG
		6-20-62	--	1310	7.6	136 6.78	52 4.33	95 4.13	6.9 0.18	0 0.00	278 4.57	410 8.54	55 1.55	15 0.24	0.8 0.04	0.63	23		1052	27	556	327	USAG

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Percent sodium	Hardness as $CaCO_3$: Total ppm	Hardness as $CaCO_3$: N C ppm	Analyzed by c
OXNARD PLAIN PRESSURE AREA (4-4.01) (Continued)																							
Brightview Oasis Motel (continued) Dom.	2N/22W-27M2	11-20-62	--	1300	8.1	145 7.26	58 4.75	83 3.63	5.3 0.14	0 0.00	296 4.85	440 9.17	56 1.57	16 0.26	0.6 0.03	0.67	30		1094	24	600	357	578[illegible]
Frank McGrath Estates Dom.	2N/23W-25Q1	5- 3-62	--	1340	8.3	128 6.39	39 3.17	125 5.43	4.3 0.11	2.1 0.07	241 3.95	460 9.58	56 1.58	2.8 0.04	0.3 0.02	0.52	28		1006	36	478	276	USGS
		11-20-62	--	1270	8.0	134 6.71	45 3.68	123 5.35	4.6 0.12	0 0.00	268 4.40	466 9.70	55 1.54	3.0 0.05	0.6 0.03	0.53	28		1062	34	524	304	5[illegible]

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$: Total ppm	Hardness as $CaCO_3$: NC ppm	Analyzed by c
						WEST COAST BASIN (4-11.02) TORRANCE AREA																	
George Banning Dom.	4S/13W- 6Q1	4-11-62	--	1086	7.8					0 0.00	246 4.04		84 2.37								363	161	S. B.
		10-25-62	72	1020	7.7	111 5.57	25 2.08	95 4.13	4.1 0.11	0 0.00	308 5.05	237 4.94	67 1.87	7.0 0.12	0.2 0.01	0.16	21		734	35	333	130	5788
Chanslor Canfield Midway Oil Co. Ind.	4S/14W- 9Q1	4-16-62	--	991	7.6					0 0.00	276 4.52		188 5.30								162	0	S. B.
Edward Sidebotham & Son Ind.	4S/14W-35E1	10-23-62	72	1020	8.4	74 3.72	25 2.07	120 5.20	5.3 0.14	6. 0.20	375 6.15	47 0.98	139 3.92	0 0	0.4 0.02	0.23	28		684	51	290	0	5788
Chandler's Palos Verdes Sand and Gravel Co. Ind.	4S/14W-35F2	4-12-62	72	1037	7.9	72 3.59	29 2.43	112 4.87	5.7 0.15	0 0.00	366 6.00	48 1.00	134 3.78	0.2 0.00	0.31 0.02	0.21	35		605	44	301	1	S. B.

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C. ppm	
WEST COAST BASIN (4-11.02) HAWTHORNE-GARDENA AREA																							
L. A. County Park Dept. Irr.	3S/14W-27C1	4-12-62	68	1094	7.6					0 0.00	224 3.68		201 5.67								352	168	S. B.
Moneta Water Company Mun.	3S/14W-35M5	4-13-62	73	494	7.5					0 0.00	246 4.04		34 0.96								136	0	S. B.
		10-22-62	70	2300	7.7	139 6.93	61 4.96	315 13.70	4.5 0.12	0 0.00	451 7.40	203 4.22	404 11.37	125 2.01	0.4 0.02	0.39	22		1502	56	595	225	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as CaCO$_3$ Total ppm	Hardness as CaCO$_3$ N.C ppm	Analyzed by c
							WEST COAST BASIN (4-11.02) SANTA MONICA BAY AREA																
Standard Oil Company Ind.	3S/14W- 7K2	4-10-62	66	1013	7.7					0 0.00	505 8.28		32 2.31								223	0	S. B.
		11-29-62	73	980	8.2	60 3.00	26 2.10	134 5.83	8.0 0.21	0 0.00	512 8.40	29 0.60	76 2.15	4.0 0.07	0.2 0.01	0.43	35		632	52	255	0	5738
California Water Service Co. Mun.	3S/14W-29M1	10-31-62	71	799	7.7	61 3.04	19 1.56	76 3.31	5.8 0.15	0 0.00	239 3.92	51 1.06	103 2.90	1.5 0.02	0.45 0.02	0.12	30		460	41	229	33	5050
City of El Segundo	3S/15W-12H2	4-10-62	72	1920	7.2	156 7.78	50 4.11	172 7.48	9.4 0.24	0 0.00	354 5.80	138 2.88	383 10.80	0 0	0.48 0.03	0.72	32		1200	38	594	304	S. B.
		10-22-62	72	1820	7.3	153 7.64	51 4.15	190 8.25	8.0 0.21	0 0.00	363 5.95	155 3.23	384 10.82	0 0	0.4 0.02	0.50	25		1320	41	590	292	5738
Standard Oil Company Ind.	3S/15W-13R2	10-24-62	74	1020	8.3	85 4.27	28 2.28	98 4.25	5.6 0.14	6 0.20	342 5.60	24 0.49	159 4.47	0 0	0.4 0.02	0.25	27		622	39	328	38	5738

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per cent sodium	Hardness as $CaCO_3$: Total ppm	Hardness as $CaCO_3$: N.C ppm	Analyzed by c
CENTRAL BASIN PRESSURE AREA (4-11.03)																							
City of Southgate Mun.	3S/13W- 2B1	11- 5-62	--	800	8.1	67 3.35	21 1.72	85 3.70	3.6 0.09	0 0.00	210 3.45	181 3.77	62 1.75	6.0 0.09	0.4 0.02	0	21		576	42	254	81	5788
LOS ANGELES FOREBAY AREA (4-11.04)																							
City of Vernon Mun.	2S/13W-10P4	5-11-62	67	740	7.6	84 4.20	18 1.50	45 1.95	3.5 0.09	0 0.00	256 4.20	1.09 2.27	41 1.15	14 0.23	0.5 0.03	0.19	25		444	25	285	75	UCR
Pioneer Paper Co. Dom. & Irr.	2S/13W-15N3	5-11-62	65	700	7.6					0 0.00	250 4.10		34 0.95								283	78	UCR
		11- 5-62	66	680	8.2	75 3.74	20 1.65	44 1.90	3.1 0.08	0 0.00	253 4.15	107 2.23	41 1.15	3.0 0.05	0.4 0.02	0.14	30		470	26	270	62	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						MAIN SAN GABRIEL BASIN (4-13.01)																	
Walnut Place Mutual Water Co. Mun.	1S/10W-19N1	5- 8-62	66	1110	7.8	120 6.00	27 2.20	74 3.20	6.3 0.16	0 0.00	235 3.85	184 3.83	87 2.45	79 1.28	0.5 0.03	0.04	19		708	28	410	218	UCR
		5-11-62	--	986	7.85	83 4.14	27 2.24	79 3.45	7 0.18	0 0.00	151 2.48	180 3.74	87 2.44	57 0.92	0.38 0.02	0.36	17		680	35	319	195	TTL
		10-30-62	Tank	1082	7.6	121 6.04	25 2.06	70 3.05	6.4 0.16	0 0.00	242 3.96	167 3.48	84 2.37	90 1.45	0.30 0.02	0.12	18		700	27	403	205	5050
Southern California Water Co. Mun.	1S/11W-10F2	3-22-62	--	376	7.45	47 2.36	13 1.05	17 0.75	2 0.05	0 0.00	193 3.16	30 0.62	15 0.42	6 0.09	0.44 0.02	0	20		295	18	171	13	TTL
		5- 9-62	62	409	8.1	52 2.60	14 1.15	13 0.57	0.1 0.02	0 0.00	211 3.45	10 0.21	7 0.20	22 0.36	0.6 0.03	0.07	24		233	13	188	15	UCR
Herbert Mutual Water Co. Dom.	1S/11W-14M1	5- 9-62	Tank	495	7.7	68 3.40	16 1.30	9 0.38	3.1 0.08	0 0.00	207 3.40	36 0.75	14 0.40	39 0.63	0.4 0.02	0.02	15		281	7	235	65	UCR
		10-30-62	Tank	569	7.5	76 3.79	19 1.56	11 0.48	3.6 0.09	0 0.00	205 3.36	61 1.27	26 0.73	32 0.52	0.35 0.02	0.04	17		350	8	267	99	5050
San Gabriel Valley Water Co. Mun. Ind.	1S/11W-26K1	5- 8-62	Reservoir	572	7.9	78 3.90	16 1.30	18 0.80	3.9 0.10	0 0.00	223 3.65	63 1.31	25 0.70	22 0.36	0.4 0.020	0.01	20		339	13	260	78	UCR
		10-30-62	66	574	7.6	73 3.64	15 1.23	24 1.04	4.2 0.11	0 0.00	215 3.52	68 1.42	28 0.79	16 0.26	0.35 0.02	0.06	20		330	17	244	63	5050
Pedro Mireles Irr. & Dom.	1S/11W-32C1	5- 8-62	Tank	843	7.6	124 6.20	27 2.20	18 0.79	2.3 0.06	0 0.00	348 5.70	93 1.93	28 0.80	48 0.77	0.4 0.02	0.02	21		530	9	420	135	UCR
Ed Alluis Dom. & Irr.	1S/11W-33P1	5- 8-62	Tank	1090	7.8	150 7.50	28 2.30	45 1.94	6.3 0.16	0 0.00	253 4.15	260 5.41	69 1.95	23 0.37	0.5 0.03	0.03	19		759	16	490	283	UCR
		10-30-62	Tank	1050	7.2	134 6.69	27 2.22	52 2.26	6.0 0.15	0 0.00	217 3.56	258 5.38	70 1.97	21 0.34	0.40 0.02	0.10	24		710	20	443	265	5050

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
						LOWER MOJAVE RIVER VALLEY (6-40) BARSTOW TO YERMO																	
Union Pacific R. R.	9N/1E- 1M1	4-11-62	Tank	450	8.1	40 2.02	7.0 0.58	51 2.20	1.3 0.03	0 0.00	190 3.12	37 0.77	27 0.76	3.1 0.05	0.4 0.02	0.16	28		286	46	130	0	USAG
Stewart C. Slack Irr. & Dom.	9N/2E- 8N2	4-11-62	Tank	372	7.8					0 0.00	162 2.65		17 0.49								103	0	USAG
State Dept. of Agriculture Dom.	10N/2E-31R1	4-11-62	Tank	.						0 0.00	174 2.85		32 0.90								110	0	USAG
EBCO, Consumers Oil Co. Irr. & Stk.	9N/1W-10D2	4-10-62	70	659	7.5					0 0.00	209 3.43		47 1.32								189	0	TTL
Lee Tipput Dom.	9N/1W-10G1	4-10-62	Tank	759	7.3	67 3.35	11 0.91	83 3.60	3 0.08	0 0.00	236 3.86	115 2.41	53 1.49	1 0.01	0.53 0.03	0	21		550	45	213	20	TTL
California Elec. Power Co. Irr.	9N/1W-13H2	4- 9-62	66	785	8.0	58 2.92	12 0.98	95 4.13	2.5 0.06	0 0.00	218 3.56	121 2.53	77 2.03	1.8 0.03	0.4 0.02	0.50	26		474	51	195	17	USAG

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
										COACHELLA VALLEY (7-21)													
Lester Roberson Dom.	5S/7E-16K1	5-10-62	Tank	320	7.9					0 0.00	152 2.50		10 0.28								115	0	USAG
		10-18-62	Tank	300	7.9	37 1.87	5 0.41	22 0.95	3.8 0.10	0 0.00	155 2.55	20 0.43	10 0.28	0 0	0.8 0.04	0.05	17		206	30	113	0	5788
Z. E. Zalay Dom.	5S/7E-22K1	5-10-62	Tank	980	7.7	128 6.42	17 1.43	42 1.83	6.1 0.16	0 0.00	178 2.91	230 4.79	78 2.20	7.0 0.11	0.4 0.02	0.32	24		602	19	398		USAG
		10-16-62	72	880	7.8	128 6.38	18 1.45	46 2.00	6.6 0.17	0 0.00	181 2.97	217 4.53	77 2.17	8.0 0.14	0.4 0.02	0.05	19		634	20	392	243	5788
J. N. Ramirez & Sons Dom. & Irr.	5S/7E-33C1	5-11-62	Tank	1280	7.7	174 8.71	17 1.41	85 3.70	6.5 0.17	0 0.00	175 2.87	321 6.69	108 3.04	71.0 1.15	0.2 0.01	0.03	24		1012	26	506	362	USAG
		10-18-62	Tank	1500	7.8	191 9.56	24 1.97	120 5.20	6.9 0.18	0 0.00	173 2.83	435 9.06	140 3.95	111 1.79	0.2 0.01	0.19	15		1126	31	577	435	5788
Mitchell Land and Improvement Co. Dom.	5S/8E-31D1	5-11-62	Tank	625	7.8	85 4.24	7 0.57	40 1.75	5.6 0.14	0 0.00	144 2.37	134 2.78	53 1.50	11.0 0.18	0.5 0.03	0.06	22		426	26	243	124	USAG
		10-16-62	Tank	630	7.9	83 4.23	8 0.65	43 1.87	5.2 0.13	0 0.00	146 2.40	122 2.55	57 1.61	11.0 0.18	0.4 0.02	0.07	17		420	27	244	124	5788
E. M. Holm Dom.	5S/8E-33N1	5-11-62	Tank	740	8.1	33 1.67	12 0.99	99 4.30	4.3 0.11	0 0.00	172 2.82	155 3.22	31 0.87	0.0 0.0	2.5 0.13	0.42	25		422	61	135	0	USAG
		10-16-62	Tank	600	8.1	26 1.29	2 0.17	105 4.55	4.5 0.12	0 0.00	128 2.10	147 3.06	31 0.87	0 0	4.0 0.20	0.41	15		408	74	75	0	5788
M. R. Shepard Dom.	6S/8E- 7P1	5-11-62	Tank	520	7.9	57 2.87	5 0.41	33 1.43	3.0 0.08	0 0.00	121 1.99	75 1.56	46 1.27	3.1 0.05	0.5 0.03	0.10	23		312	30	163	63	USAG
		10-16-62	Tank	490	8.1	60 3.00	5 0.41	37 1.60	4.1 0.11	0 0.00	128 2.10	68 1.43	55 1.54	2.0 0.03	0.4 0.02	0.05	16		360	31	172	67	5788
E. H. McCain Dom. & Irr.	6S/8E-10A4	5-11-62	--	430	8.2	22 1.12	0 0.00	70 3.05	2.0 0.05	0 0.00	95 1.55	75 1.57	37 1.02	0.0 0.0	4.2 0.21	0.21	19		282	72	56	0	USAG
		10-16-62	74	460	8.1	20 1.02	7 0.58	74 3.20	2.3 0.06	0 0.00	103 1.68	82 1.70	41 1.16	0 0	4.0 0.20	0.33	20		312	65	83	0	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magne-sium (Mg)	Sodium (Na)	Potas-sium (K)	Carbon-ate (CO_3)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Ni-trate (NO_3)	Fluo-ride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
						COACHELLA VALLEY (7-21) (Continued)																	
W. C. and Joe Stroube Dom.	6S/8E-27H1	5-15-62	Tank	229	8.3	14 0.69	0 0.00	34 1.47	2.2 0.06	2 0.07	83 1.36	25 0.53	9 0.24	0 0	0.5 0.03	00.3	19		164	66	35	0	USAG
		10-17-62	73	235	7.8	12 0.60	2 0.17	37 1.60	1.8 0.05	0 0.00	88 1.45	31 0.65	12 0.32	0 0	0.8 0.04	00.2	19		158	66	39	0	5788
Nazenig Karahadian Dom. & Irr.	6S/9E-30C1	5-14-62	Tank	268	8.4	7 0.37	2.1 0.17	51 2.20	1.1 0.03	15 0.49	80 1.31	38 0.78	17 0.47	0 0	2.0 0.10	0.08	19		176	79	27	0	USAG
		10-17-62	80	270	8.4	8 0.40	1 0.08	51 2.20	1.5 0.04	1.8 0.06	83 1.37	42 0.88	11 0.31	0 0	2.0 0.10	0.10	12		170	71	24	0	5788
Vessey Brothers Dom.	7S/8E-22M1	10-17-62	Tank	1800	7.5	153 7.64	7 0.59	260 11.30	5.5 0.14	0 0.00	20 0.34	377 7.85	392 11.05	10.0 0.17	0.2 0.01	0.12	9		1248	57	412	395	5788
C. Crockett Dom. & Irr.	7S/9E-16K1	5-15-62	Tank	740	8.7	6 0.31	0 0.00	155 6.75	0.5 0.01	3.6 0.12	188 3.09	67 1.41	77 2.17	0 0	3.5 0.18	0.29	18		456	96	16	0	USAG
		10-17-62	Tank	730	8.4	8 0.40	2 0.17	165 7.17	1.0 0.03	4.8 0.16	207 3.40	100 2.09	73 2.06	0 0	6.0 0.30	0.33	11		530	92	32	0	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO3)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Nitrate (NO3)	Fluoride (F)	Boron (B)	Silica (SiO2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as CaCO3 Total ppm	Hardness as CaCO3 N.C ppm	Analyzed by c
						ANAHEIM BASIN PRESSURE AREA (8-1.01)																	
Charles Stedman Dom. & Irr.	5S/11W-21M3	3-19-62		363	8.2					24 0.8	162 2.66		13 0.37										OCDA
		9-27-62		363	8.1						174 2.85		13 0.37										OCDA
Anderson Water Co. Dom.	5S/11W-21N2	3-14-62		598	7.9						196 3.21		23 0.65										OCDA
		9-27-62		616	7.8						207 3.39		20 0.56										OCDA
Harry C. Fulton Dom.	5S/11W-25R2	3- 9-62		794	8.0						300 4.92		38 1.07										OCDA
		9-26-62		813	7.7						375 6.15		36 1.01										OCDA
Balsa Land Co. Mun.	5S/11W-28K1	3-29-62		513	8.6					15 0.49	284 4.66		19 0.54										OCDA
Sunset Land and Water Co. Mun.	5S/11W-29C1	3-14-62		323	8.7					14.6 0.49	146 2.39		18 0.51										OCDA
		9-26-62		320	8.3	9 0.46	1 0 08	63 2.75	0.94 0.03	2.4 0.08	143 2.35	17 0.36	15 0.42	0 0	1.0 0.05	0.08	14		228	82	29	0	5788
		10- 1-62		324	8.7	8 .39	7 .06	66 2.87	2 .04	10 .33	161 2.64	6 .12	13 .37			0.07			207	85			OCDA
Signal Oil and Gas Co. Ind.	5S/11W-33H1	3-14-62		363	8.5					9.8 .33	184 3.02		14 .39										OCDA
		9-27-62		351	8.5					11 .37	190 3.11		13 .37										OCDA
Signal Oil and Gas Co. Ind.	5S/11W-34F3	3-14-62		635	8.7					15.9 .53	351 5.75		18 .51										OCDA
		9-27-62		616	8.6					18 .60	357 5.85		18 .51										OCDA

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as CaCO$_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a			Total ppm	N.C ppm	
						ANAHEIM BASIN PRESSURE AREA (8-1.01) (Continued)																	
J. J. Courreges Irr.	5S/11W-36B2	3- 9-62		535	8.0	63 3.14	10 .84	31 1.35	3 .07	0 0.00	224 3.67	48 1.00	28 .79			.06			359	25			OCDA
		9-26-62		535	7.9						232 3.80		28 .79										OCDA
Ivan Harper Dom. & Irr.	5S/11W-36P1	3- 5-62		2156	7.5	272 13.57	38 3.13	82 3.57	5.5 .14	0 0.00	215 352	60 1.25	562 15.83			.07			1232	17			OCDA
		9-17-62		1815	7.7	215 10.73	40 3.29	62 2.70	5 .14	0 0.00	232 3.80	64 1.33	438 12.34			.06			1145	16			OCDA
Hellman Ranch Dom. & Irr.	5S/12W-12C1	3-22-62		318	8.3					7.3 .24	145 2.38		13.7 39										OCDA
		10- 1-62		318	8.8					13 0.43	137 2.25		13 .37										OCDA
Tidewater Oil Co. Ind.	6S/10W- 5N2	4-16-62		1255	7.6	138 6.89	20.4 1.68	77 3.35	3.2 0.08	0 0.00	231 3.79	28 0.58	267 7.52			0.02			718	28			OCDA
William Lamb Irr.	6S/10W- 6B2	3-14-62		588	7.8						226 3.70		39 1.10										OCDA
		4-26-62		616	7.8	72 3.59	14 1.15	34 1.48	3 .07	0 0.00	224 3.67	54 1.13	60 1.69			.05			362	24			OCDA
Earl Lamb Irr.	6S/10W- 6H1	3-27-62		1142	7.6	136 6.79	192 15.8	51 2.23	4 0.10	0 0.00	224 367	29 0.60	237 6.68			0.02			702	21			OCDA
		10- 3-62		753	7.8	85 4.24	16 1.32	41 1.78	3 .07	0 0.00	224 3.67	32 .67	118 3.32			.02			475	24			OCDA
J. Bushard Dom.	6S/10W- 7D3	1-17-62		9299	7.2	685 34.20	124 10.20	1173 51.00	16 0.40	0 0.00	3.97 6.52	0 0	3114 87.69	0 0	0 0	0.73	19		6010	53	2220		TTL
E. H. Geisler Dom.	6S/10W-18B4	3-19-62		5979	7.7						288 4.72		1889 53.27										OCDA
Urban Plavan Irr.	6S/11W- 1J3	3- 9-62		2904	7.7	344 17.17	46 3.75	125 5.44	6 .16	0 0.00	145 2.38	94 1.96	799 22.53			0.02			1880	21			OCDA

ANALYSES OF GROUND WATER
1962
(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25°C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	NC ppm	
						ANAHEIM BASIN PRESSURE AREA (8-1.01) (Continued)																	
Urban Plavan (continued) Irr.	6S/11W- 1J3	9-26-62		4149	7.5	468 23.40	89 7.32	214 9.31	10 .26	0 0.00	156 2.56	144 3.00	1250 35.21			.11			2880	23			OCDA
Huntington Beach Golf Course Irr.	6S/11W- 3R2	3-29-62		1374	8.0						333 5.46		278 7.83										OCDA
		9-24-62		1666	8.1	74 3.69	20 1.64	235 10.22	4 .11	0 0.00	356 5.84	2 .04	368 10.37			.28			940	65			OCDA

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Percent sodium	Hardness as CaCO$_3$ Total ppm	Hardness as CaCO$_3$ NC ppm	Analyzed by c
								CHINO BASIN (8-2.01)															
Fontana Union Water Co. Dom. & Irr.	1S/5W- 7H1	[illegible]-2[illegible]-62	--	34[illegible]	[illegible].0	56 2.[illegible]9	3.[illegible] 0.30	14 0.61	2.0 0.0[illegible]1	0 0.00	183 3.00	14 0.29	9 0.25	9.1 0.147	0.29 0.015	0.005			213	16.3	154	4	DWR
		11-[illegible]-62	--	371	[illegible].0	59 2.9[illegible]	6 0.4[illegible]	10 0.43	2.1 0.05[illegible]	0 0.00	190 31.2	25 0.52	6 0.17	3.4 0.054	0.40 0.02	0.010			231	11.0	173	17	DAW
S & S Ranch Irr. & Dom.	1S/6W-29R1	3-2[illegible]-62	--	425	7.9	61 3.05	4 0.35	22 0.94	1.6 0.04	0 0.00	192 3.15	1 0.03	27 0.75	27 0.43	0.2 0.01	0.01	28		257	21	170	13	UCR
		[illegible]-20-62	--	422	[illegible].0	57 2.[illegible]	5 0.41	25 1.09	1.6 0.041	0 0.00	195 3.20	9 0.19	26 0.73	17.3 0.237	0.26 0.01	0.010			259	24.9	165	5	DWR
C. T. Merrill Dom. & Irr.	2S/7W-21L1	1-1[illegible]-62	--	736	8.2	102 5.09	27 2.22	32 1.39	2.4 0.061	14 0.4[illegible]	295 4.84	57 [illegible]	33 0.93	73.6 1.137	0.20 0.011	0.03			513	15.9	366	100	DWR
		7-25-62	--	7[illegible]3	7.[illegible]	104 5.19	24 1.97	32 1.39	1.7 0.043	0 0.00	325 5.32	50 1.04	34 0.96	72.8 1.174	0.34 0.018	0.00			501	16.2	360	94	DWR
A. Omlim Dom. & Dairy	2S/7W-23E1	1-19-62	--	727	7.5	96 4.79	24 1.97	28 1.22	2.0 0.051	0 0.00	325 5.32	32 0.67	38 1.07	50.0 0.807	0.37 0.019	0.0			443	15.2	335	69	DWR
		7-25-62	--	791	7.6	103 5.14	25 2.06	29 1.26	1.5 0.038	0 0.00	356 5.84	38 0.79	41 1.16	55.2 0.890	0.35 0.018	0.0			494	14.8	360	68	DWR
C. Luginbill Dom.	2S/7W-27A1	1-19-62	--	969	7.5	121 6.04	29 2.38	60 2.61	2.1 0.054	0 0.00	513 8.40	39 0.81	49 1.38	31.2 0.503	0.37 0.019	0.02			703	20.1	479	49	DWR
		7-25-62	--	1032	7.4	128 6.39	34 2.80	57 2.46	2.3 0.059	0 0.00	515 8.44	46 0.96	53 1.49	40 0.645	0.28 0.015	0.00			643	21.0	458	36	DWR

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million													Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$		Analyzed by c
						Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a			Total ppm	N.C ppm	
						BUNKER HILL BASIN (8-2.06)																	
Delmarm Water Co. Mun.	1N/4W-29F1	3-27-62	--	1275	7.6	220 11.00	41 3.40	23 1.00	4.7 0.12	0 0.00	302 4.95	435 9.05	25 0.70	34 0.55	0.6 0.033	0.44	23		965	6	720	473	UCR
		9-25-62	--	1064	7.5	171 8.53	32 2.63	24 1.04	5.4 0.14	0 0.00	285 4.68	311 6.48	23 0.65	26 0.42	0.52 0.03	0.67	30		830	8	560	326	5050
Cook's Orchards. Irr.	1S/3W-16A1	9-27-62	--	277	7.6	30 1.50	5.5 0.45	19 0.83	1.8 0.05	0 0.00	134 2.20	22 0.45	7 0.20	3.0 0.05	0.36 0.02	0.03	28		185	29	98	0	5050
Tri-City Rock Co. Ind. Dom.	1S/3W- 9E2	3-27-62	--	353	7.7	37 1.85	8.5 0.70	23 1.00	2.8 0.07	0 0.00	163 2.68	13 0.27	19 0.54	6.0 0.10	0.36 0.02	0.32	27		160	28	134	0	S. B.
		9-25-62	--	375	7.5	44 2.20	7.9 0.65	20 0.87	3.4 0.09	0 0.00	168 2.76	13 0.27	22 0.62	4.5 0.07	0.30 0.02	0.28	30		230	23	142	4	5050
Mesbur Realty Co. Dom.	1S/4W-13F3	3-27-62	--	305	8.3	35 1.75	10 0.82	14 0.61	2.2 0.06	7.2 0.24	127 2.08	23 0.48	9 0.25	10 0.16	0.44 0.02	0.24	20		170	19	128	0	S. B.
		5- 2-62	--	349	7.9	48 2.40	7.3 0.60	14 0.61	2.8 0.07	0 0.00	146 2.40	36 0.75	12 0.34	9.5 0.15	0.44 0.02	0.22	19		220	17	148	28	S. B.
Gage Canal Co. Irr.	1S/4W-13G2	6- 8-62	60	375	7.6	48 2.40	9.9 0.82	15 0.65	2.0 0.05	0 0.00	172 2.82	22 0.45	14 0.39	10 0.16	0.36 0.02	0.19	23		240	17	161	20	S. B.
		9-25-62	--	401	7.8	54 2.69	9.2 0.76	16 0.70	2.4 0.06	0 0.00	185 3.04	22 0.45	17 0.48	10 0.16	0.44 0.02	0.30	25		250	17	172	20	5050
Gage Canal Co. Dom.	1S/4W-13L1	7- 2-62	--	340	8.1	44 2.20	7.9 0.65	15 0.65	2.0 0.05	0 0.00	146 2.40	27 0.57	8 0.23	18 0.29	0.64 0.03	0.02	21		230	18	142	22	S. B.
		9-25-62	--	377	7.9	51 2.54	7.3 0.60	16 0.70	2.2 0.06	0 0.00	156 2.56	31 0.65	7 0.20	25 0.40	0.52 0.03	0.02	24		250	18	157	29	5050

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO$_3$)	Bicarbonate (HCO$_3$)	Sulfate (SO$_4$)	Chloride (Cl)	Nitrate (NO$_3$)	Fluoride (F)	Boron (B)	Silica (SiO$_2$)	Other Constituents a	Total dissolved solids in ppm b	Percent sodium	Hardness as CaCO$_3$ Total ppm	Hardness as CaCO$_3$ N C ppm	Analyzed by c
SAN LUIS REY VALLEY, MISSION BASIN (9-7.01)																							
K. Johnson Irr.	11S/4W- 5K1	11-29-62	68	3100	7.9	319 15.92	90 7.43	180 7.83	90 0.24	0 0.00	234 3.84	127 2.65	869 24.48	0 0	0.02 0.01	0.23	24		1812	25	1167	975	5788
C. S. Starr Dom. & Irr.	11S/4W- 8N3	4-10-62	Tank	1725	7.5	136 6.79	50 4.03	145 6.30	6.2 0.16	0 0.00	297 4.70	2.05 4.26	301 8.50	0 0	0.4 0.02	0.17	19		1050	36	543	303	USAG
Mission San Luis Rey Dom.	11S/4W- 8K1	4-10-62	64	980	7.8	41 2.03	5 0.41	155 6.75	1.0 0.03	0 0.00	108 1.77	72 1.51	197 5.54	1.3 0.03	1.0 0.05	2.0	22		572	74	120	31	USAG
		11-29-62	Tank	1260	7.3	109 5.46	13 1.07	150 6.50	2.5 0.06	0 0.00	199 3.27	103 2.14	256 7.22	14.0 0.23	0.4 0.02	0.97	22		778	50	327	163	5788
Clarence Nishizu Dom. & Irr.	11S/4W- 3M1	4-10-62	Tank	2870	7.5	179 8.97	77 6.26	300 13.05	1.3 0.03	0 0.00	305 5.00	224 4.67	654 18.45	0 0	0.6 0.03	0.37	20		1710	46	762	512	USAG
		11-28-62	Tank	2720	7.5	227 11.24	60 4.90	310 13.43	2.0 0.05	0 0.00	3.21 5.26	256 5.32	692 19.53	0 0	0.4 0.02	0.41	20		1814	45	812	549	5788
City of Oceanside Mun.	11S/4W-18L3	11-26-62	68	2325	7.2	313 15.60	53 4.36	213 9.25	7.0 0.18	0 0.00	337 5.51	655 13.65	343 9.67	0 0	0.2 0.01	0.23	23		1868	32	998	222	5788
Carlsbad Water Dept. Mun.	11S/4W-18L4	4- 9-62	68	1920	7.3	160 8.01	57 4.72	170 7.40	5.5 0.14	0 0.00	303 4.97	306 6.36	319 8.99	0 0	0.4 0.02	0.17	19		1200	36	637	388	USAG
St. Charles Priory Dom.	11S/5W-13L1	3-28-62	68	2205	7.8	236 11.80	92 7.60	195 8.50	8.2 0.21	0 0.00	323 5.30	552 11.50	379 10.70	5.6 0.09	0.6 0.031	0.09	26		1703	30	970	705	UCR
		4- 9-62	--	2650	7.2	291 14.50	63 5.16	193 8.40	7.5 0.19	0 0.00	330 5.41	573 11.93	406 11.45	0 0	0.3 0.02	0.22	13		1820	30	983	712	USAG

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Mineral constituents in parts per million / equivalents per million: Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$: Total ppm	Hardness as $CaCO_3$: NC ppm	Analyzed by c
						EL CAJON VALLEY (9-16)																	
Russell Segel Dom.	15S/1E-31R1	4-19-62	Tank	1000	7.3	46 2.32	28 2.30	127 5.50	1.8 0.05	0 0.00	155 2.55	116 2.43	166 4.67	38 0.61	0.4 0.02	0.09	43		640	54	229	101	USAG
		12- 4-62	Tank	1060	7.1	51 2.57	28 2.30	138 6.00	2.3 0.06	0 0.00	186 3.05	111 2.32	177 4.99	40 0.65	0.6 0.03	0.20	39		662	55	245	92	5788
Jack Graves Dom.	16S/1W- 1G1	12- 4-62	Tank	1835	7.2	149 7.45	75 6.15	180 7.83	1.0 0.03	0 0.00	303 4.96	391 8.14	223 6.31	103 1.67	0.4 0.02	0.41	45		1398	37	680	432	5788
Bob Gilb Dom.	16S/1W- 2K6	4-19-62	Tank	1900	7.2					0 0.00	275 4.51		361 10.19								555	329	USAG
		12- 4-62	Tank	1990	7.2	130 6.49	61 4.98	220 9.55	1.2 0.03	0 0.00	318 5.21	177 3.68	388 10.92	60 0.97	0.4 0.02	0.23	47		1324	45	574	313	5788
City of El Cajon Dom.	16S/1W- 3C2	4-19-62	--	1640	7.5	95 4.74	43 3.54	228 0.90	2.2 0.06	0 0.00	225 3.68	83 1.73	447 12.59	1.4 0.02	0.2 0.01	0.20	27		1132	54	414	230	USAG
		12- 4-62	Pr. Sys.	1750	7.5	93 4.64	38 3.10	240 10.43	2.5 0.06	0 0.00	221 3.61	85 1.76	446 12.58	1.0 0.02	0.4 0.02	0.14	23		1192	57	387	206	5788

ANALYSES OF GROUND WATER

1962

(continued)

Owner and use Source	State well number and other number	Date sampled	Temp in °F	Specific conductance (micromhos at 25° C)	pH	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Fluoride (F)	Boron (B)	Silica (SiO_2)	Other Constituents a	Total dissolved solids in ppm b	Per-cent sodium	Hardness as $CaCO_3$ Total ppm	Hardness as $CaCO_3$ NC ppm	Analyzed by c
						Mineral constituents in parts per million / equivalents per million																	
TIA JUANA BASIN (9-19)																							
Calif. Water and Telephone Co. Test	18S/2W-32H1	5- 7-62	69	11300	7.5	426 21.25	654 53.75	1070 46.50	8.0 0.21	0 0.00	612 10.04	651 13.56	3520 99.25	0 0	0.4 0.02	0.86	26		7838	38	3750	3248	USAG
	18S/2W-32P4	5- 8-62	67	25750	7.6	752 37.50	790 65.00	5020 218.30	100 2.65	0 0.00	305 5.00	1353 28.17	10250 288.25	0 0	0.2 0.01	1.0	24		22620	70	5125	4875	USAG
		11- 7-62	68	25000	7.8	847 42.25	928 76.25	5050 219.50	125 3.20	0 0.00	311 5.10	1404 29.25	14190 401.0	0 0	0.2 0.01	1.17	18		21766	64	5925	5675	5788
James Jackson Irr.	18S/2W-33K4	4-18-62	70	3882	7.1	248 12.40	73 6.00	469 20.40	6 0.16	0 0.00	390 6.40	559 11.64	726 20.44	0 0	0.75 0.04	0.48	19		2595	52	920	600	
		11-19-62	67	4100	7.2	297 14.80	105 8.60	474 20.60	7.4 0.19	0 0.00	403 6.60	652 13.57	847 23.90	6.2 0.10	0.8 0.044	0.14	21		2746	47	1170	840	5050
Calif. Water and Telephone Co. Test	19S/2W- 5C6	5- 9-62	69	20500	7.8	736 36.75	514 42.25	4300 187.00	10 0.26	0 0.00	338 5.54	1191 24.81	8260 232.75	0 0	0.3 0.02	0.84	20		18136	70	3950	3673	USAG
		11- 7-62	69	21000	7.9	716 35.75	587 48.25	4450 193.50	40 1.06	0 0.00	260 4.26	1139 23.72	869.0 245.00	0 0	0.2 0.01	1.00	13		6800	70	4200	3987	5788
Knox Dairy Farm Irr.	19S/2W- 5G18	5- 9-62	70	7837	7.5	378 18.86	210 17.26	1050 45.68	6.0 0.15	0 0.00	232 3.80	436 9.08	2430 68.53	12.0 0.19	0.93 0.05	0.55	18		5045	56	1802	1612	S. B.
		11- 7-62	70	7500	8.0	381 19.00	164 13.50	1225 53.25	17 0.45	0 0.00	540 8.85	273 5.68	2589 73.00	0 0	0.2 0.01	0.63	16		5192	16	1625	1183	5788

FOOTNOTES FOR ANALYSES OF GROUND WATER

a. Fe - Iron
Al - Aluminum
As - Arsenic
Cu - Copper
NH_4 - Ammonium
Pb - Lead
Mn - Manganese
Zn - Zinc
Cr - Chromium
H_2S - Hydrogen Sulfide
PO_4 - Phosphate
Sr - Strontium
ABS - Alkyl Benzene Sulfonate

b. Gravimetric Determination

c. Analysis by DWR TAMM Shaw Shatto 5050 - Department of Water Resources
Term TTL - Terminal Testing Laboratories, Inc.
Lein USAG DLE 5788 - United States Agricultural Advisors
SBCOFCD - San Bernardino County Flood Control District
OCDA - Orange County Department of Agriculture
FGL - Fruit Growers Laboratory
Smith - Smith Emery Laboratories
Babcock - Babcock Laboratories
James - James Laboratories
CES UCR - University of California, Riverside
LACFCD - Los Angeles County Flood Control District

TABLE B-5

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
CENTRAL COASTAL REGION (NO. 3)		
Santa Maria River Valley (3-12)		
10N/36W- 2G1	4-24-62	0 ± 3.4
-14R1	4-24-62	0 ± 3.5
11N/26W- 2G1	10-22-62	11.3 ± 3.2
11N/35W- 9P1	10-11-62	0.3 + 0.2
Cuyama Valley (3-13)		
No Analysis		

[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
LOS ANGELES REGION (NO. 4)		
Oxnard Plain Pressure Area (4-4.01)		
1N/22W- 3F4	4-18-62	2.2 ± 3.8
-16Q1	4-19-62	2.5 ± 1.2
-19H1	4-18-62	0.0 ± 3.5
-28B1	4-25-62	2.7 ± 4.0
West Coast Basin (4-11.02)		
Santa Monica Bay Area		
3S/14W-30H2	10-22-62	0.3 ± 0.2
-30H2	4- 9-62	5.9 ± 3.7
3S/15W-12H3	10-22-62	1.2 ± 0.7
-12H3	4-10-62	1.3 ± 3.7
13R2	10-24-62	1.3 ± 0.8
Hawthorne-Gardena Area (4-11.02)		
3S/14W-25K4	10-22-62	0.3 ± 0.2
-25K4	4-18-62	0 ± 3.6
-27C1	10-26-62	0.3 ± 0.2
-27C1	4-18-62	3.5 ± 3.7
-35M5	10-22-62	4.4 ± 1.6
-35M5	4-13-62	3.9 ± 3.9

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[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
West Coast Basin		
Torrance Area (4-11.02)		
4S/13W- 6Q1	10-25-62	7.4 ± 2.3
4S/14W- 9Q1	10-25-62	5.0 ± 1.8
-16L2	4-18-62	3.3 ± 3.8
-35E1	10-23-62	1.4 ± 0.8
-35E1	4-12-62	2.5 ± 3.6
4S/19W- 9Q1	4-16-62	4.3 ± 3.9
Central Basin Pressure Area (4-11.03) and Los Angeles Forebay Area (4-11.04)		
2S/13W-10P4	5-11-62	7.9 ± 4.0
-14H1	5-11-62	0.0 ± 3.8
-15N3	5-11-62	0.0 ± 3.6
Main San Gabriel Basin (4-13.01)		
1S/10W- 7A5	5- 9-62	2.3 ± 3.6
-10C1	10-30-62	2.9 ± 1.2
-10C1	5- 9-62	0.2 ± 3.9
-19N1	5- 8-62	5.4 ± 4.0
1S/11W-10F1	5- 9-62	0.4 ± 3.9
-14M1	5- 9-62	5.6 ± 3.9

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[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

RADIOASSAY OF GROUND WATER

(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Main San Gabriel Basin (4-13.01) (continued)		
1S/11W-25Q1	5- 8-62	7.7 ± 4.0
-26K1	5- 8-62	2.6 ± 3.6
-32C1	5- 8-62	6.9 ± 3.9
-33P1	5- 8-62	1.8 ± 4.0
1S/12W-10E1	5- 9-62	1.8 ± 3.5
1S/14W-10N1	5-16-62	5.9 ± 3.7

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[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

RADIOASSAY OF GROUND WATER
(continued)

LAHONTAN REGION (NO. 6)

Lower Mojave River Basin (6-40)
Barstow to Yermo

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l^{a}
9N/ 1E- 1M1	4-11-62	3.2 ± 1.4
-15N2	4- 9-62	10.0 ± 3.4
9N/ 2E-18E1	4-19-62	2.9 ± 1.3
9N/ 1W- 4G1	12-21-62	3.4 ± 2.2
- 4G1	4-10-62	2.4 ± 1.1
- 9D1	4-10-62	17.2 ± 3.8
- 9G1	4-10-62	7.1 ± 2.2
-10D2	4-10-62	2.6 ± 1.2
-10G1	4-10-62	10.8 ± 3.5
-13H2	4- 9-62	5.1 ± 1.7
9N/ 2W- 1C1	4-10-62	3.5 ± 1.5
- 1F4	4-10-62	1.0 ± 0.7
10N/ 1W-33E1	4-10-62	2.8 1.3

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a MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
COLORADO RIVER BASIN REGION (NO. 7)		
Coachella Valley (7-21) South End		
5S/7E- 4D2	5-10-62	16.1 ± 4.1
-16K1	5-10-62	7.9 ± 3.9
-22K1	5-10-62	5.8 ± 3.8
-33C1	5-11-62	7.8 ± 3.6
5S/8E-31D1	5-11-62	9.0 ± 3.4
-33N1	5-11-62	1.1 ± 3.8
6S/8E- 7F1	5-11-62	3.6 ± 4.0
-10A4	5-11-62	5.8 ± 3.9
-27H1	5-15-62	0.0 ± 3.6
6S/9E-30C1	5-15-62	4.0 ± 3.8

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
SANTA ANA REGION NO. 8		
Anaheim Basin Pressure Area (8-1.01)		
6S/10W- 7J4	5-11-62	2.5 ± 3.6
- 7M3	5-17-62	11.0 ± 3.9
- 7Q3	5-18-62	4.5 ± 4.0
- 8K1	5-14-62	2.3 ± 3.6
-17M2	5-18-62	0.0 ± 3.9
-18A1	5-18-62	11.0 ± 3.8
-18K7	5-17-62	18.7 ± 3.9
-18P1	5- 1-62	17.9 ± 3.8
6S/11W-13C2	5-11-62	1.5 ± 4.0
-13C2	10-21-62	3.2 ± 1.3
-13D1	5-11-62	1.0 ± 3.4
-13D1	10-22-62	1.8 0.9
Chino Basin (8-2.01)		
2S/ 7W-10M1	1- 9-62	0.8 ± 0.6
-10M1	7-25-62	5.8 ± 1.9
-15A1	1-19-62	0.8 ± 0.6
-15A1	7-25-62	0.9 ± 0.6
-21L1	1-19-62	2.5 ± 1.2
-21L1	7-25-62	2.1 ± 1.0

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Chino Basin (8-2.01) (continued)		
2S/ 7W-23E1	1-19-62	3.3 ± 1.4
-23E1	7-25-62	2.9 ± 1.2
-27A1	1-14-62	2.2 ± 1.1
-27A1	7-25-62	3.7 ± 1.4
Bunker Hill Basin (8-2.06)		
1S/ 3W- 1H1	9- 5-62	1.8 ± 0.9
1S/ 4W- 5E5	9-10-62	1.4 0.8

[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
SAN DIEGO REGION NO. 9		
San Luis Rey Valley Mission Basin (9-7.01)		
11S/ 4W- 4J2	11-30-62	5.9 ± 2.0
- 5K1	11-29-62	2.4 ± 1.1
- 6R4	11-29-62	2.5 ± 1.1
- 8J2	4-10-62	4.7 ± 1.7
- 8K1	11-29-62	2.7 ± 1.2
- 8N1	11-28-62	5.1 ± 1.8
- 9F1	11-30-62	3.5 ± 1.4
-18C8	11-28-62	4.0 ± 1.5
-18L3	11-26-62	1.3 ± 0.8
11S/ 5W-13L1	4- 9-62	7.5 ± 2.2
-13L1	4- 9-62	4.1 ± 1.5
-13L1	4- 9-62	0.0 ± 3.7
-13L2	4-10-62	0.0 ± 3.5
-13N3	5- 3-62	2.3 ± 3.8
-13P2	5- 3-62	0.0 ± 4.0
-13Q3	5- 4-62	1.7 ± 3.9
-23E3	11-26-62	3.3 ± 1.3
-24B2	5- 3-62	16.2 ± 3.9

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[a] MICROMICROCURIES PER LITER — PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

QUALITY OF GROUND WATERS IN CALIFORNIA

RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
El Cajon Valley (9-16)		
16S/ 1W- 1G1	12- 4-62	3.8 ± 1.5
- 2K6	12- 4-62	3.4 ± 1.4
- 2K6	4-19-62	0.0 ± 3.5
- 3C2	12- 4-62	3.8 ± 1.4
- 3E1	12- 4-62	5.6 ± 1.9
-11P4	12- 5-62	4.1 ± 1.5
-11P4	4-19-62	0.0 3.9
-12J3	12- 5-62	5.2 1.8
-15K2	4-19-62	20.5 4.2
Tia Juana Valley Basin (9-19)		
18S/ 2W-32H1	5- 7-62	6.0 ± 3.9
-32P4	5- 8-62	26.7 ± 4.2
-32Q1	5- 8-62	4.7 ± 3.7
-33K4	11-19-62	5.2 ± 1.8
-35L1	11- 9-62	4.0 ± 1.5
-35L1	4-18-62	6.7 ± 3.8
19S/ 2W- 1N6	11-19-62	7.9 ± 2.4
(133C)- 4L1	11-20-62	7.6 ± 2.3
- 5B6	5- 8-62	22.4 ± 4.0
- 5C6	5- 9-62	0.2 ± 0.4

[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

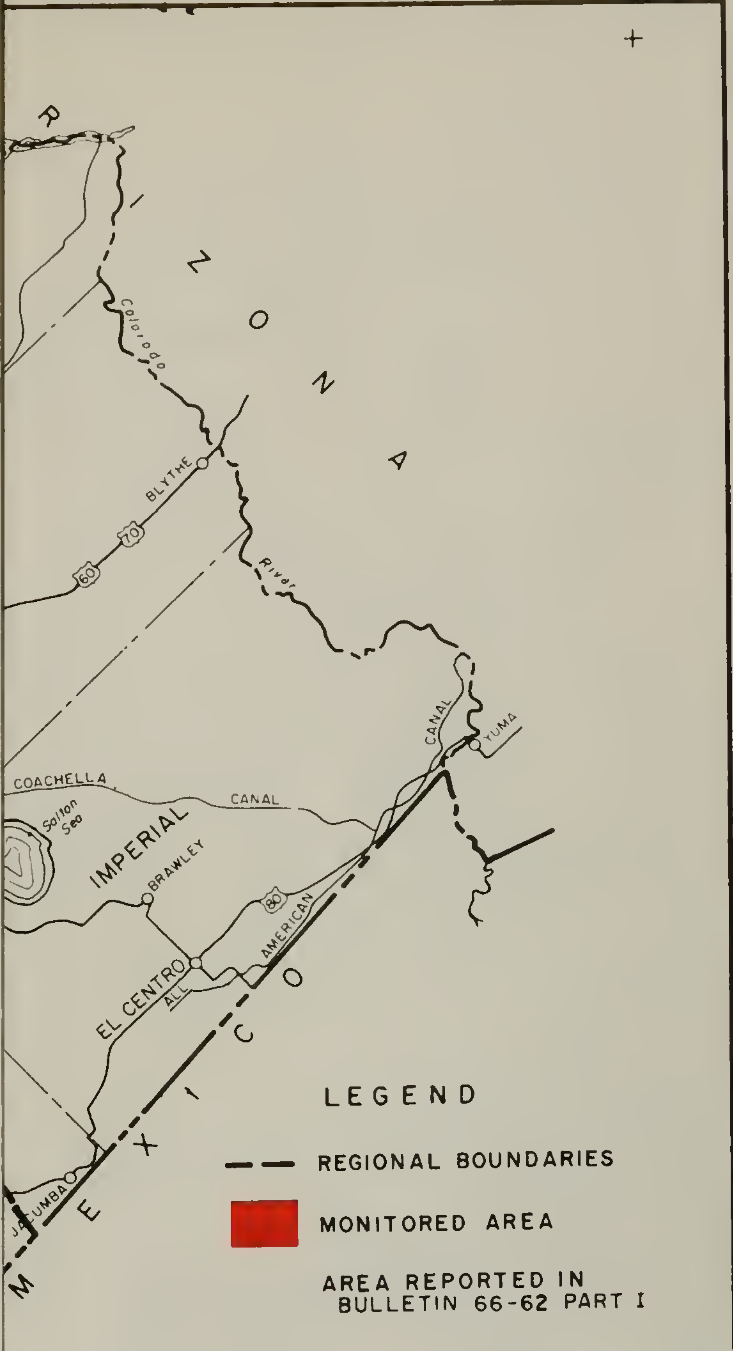
RADIOASSAY OF GROUND WATER
(continued)

STATE WELL NUMBER	DATE SAMPLED	TOTAL ACTIVITY uuc/l[a]
Tia Juana Valley Basin (9-19) (continued)		
19S/ 2W- 5C6	5- 9-62	0.8 ± 0.6
- 5G18	5- 9-62	3.0 ± 3.6
- 5L2	5- 9-62	11.0 ± 3.9
- 5Q2	4-18-62	7.6 ± 3.4
- 5Q3	11-20-62	3.2 ± 1.3
- 6Q1	4-11-62	1.2 ± 3.9

---

[a] MICROMICROCURIES PER LITER – PROBABLE ERROR COMPUTED AT ONE STANDARD DEVIATION IN MICROMICROCURIES PER LITER WITHOUT SELF ABSORBTION CORRECTION

PLATE I



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT

QUALITY OF GROUND WATERS
IN CALIFORNIA, 1961 & 1962
PART II SOUTHERN CALIFORNIA

◆

MONITORED AREAS
1961–1962

SCALE OF MILES
10 0 10 20 30 40 50

1964

INDEX TO MONITORED AREAS

CENTRAL COASTAL REGION (NO. 3)

3-12	SANTA MARIA RIVER VALLEY
3-13	CUYAMA RIVER VALLEY

LOS ANGELES REGION (NO. 4)

4-401	OXNARD PLAIN PRESSURE AREA
4-11.02	WEST COAST BASIN SANTA MONICA BAY AREA HAWTHORNE-GARDENA AREA TORRANCE AREA
4-11.03 4-11.04	CENTRAL BASIN PRESSURE AREA AND LOS ANGELES FORBAY AREA
4-13.01	MAIN SAN GABRIEL BASIN

LAHONTAN REGION (NO. 6)

6-40	LOWER MOJAVE RIVER VALLEY, BARSTOW TO YERMO

COLORADO RIVER BASIN REGION (NO. 7)

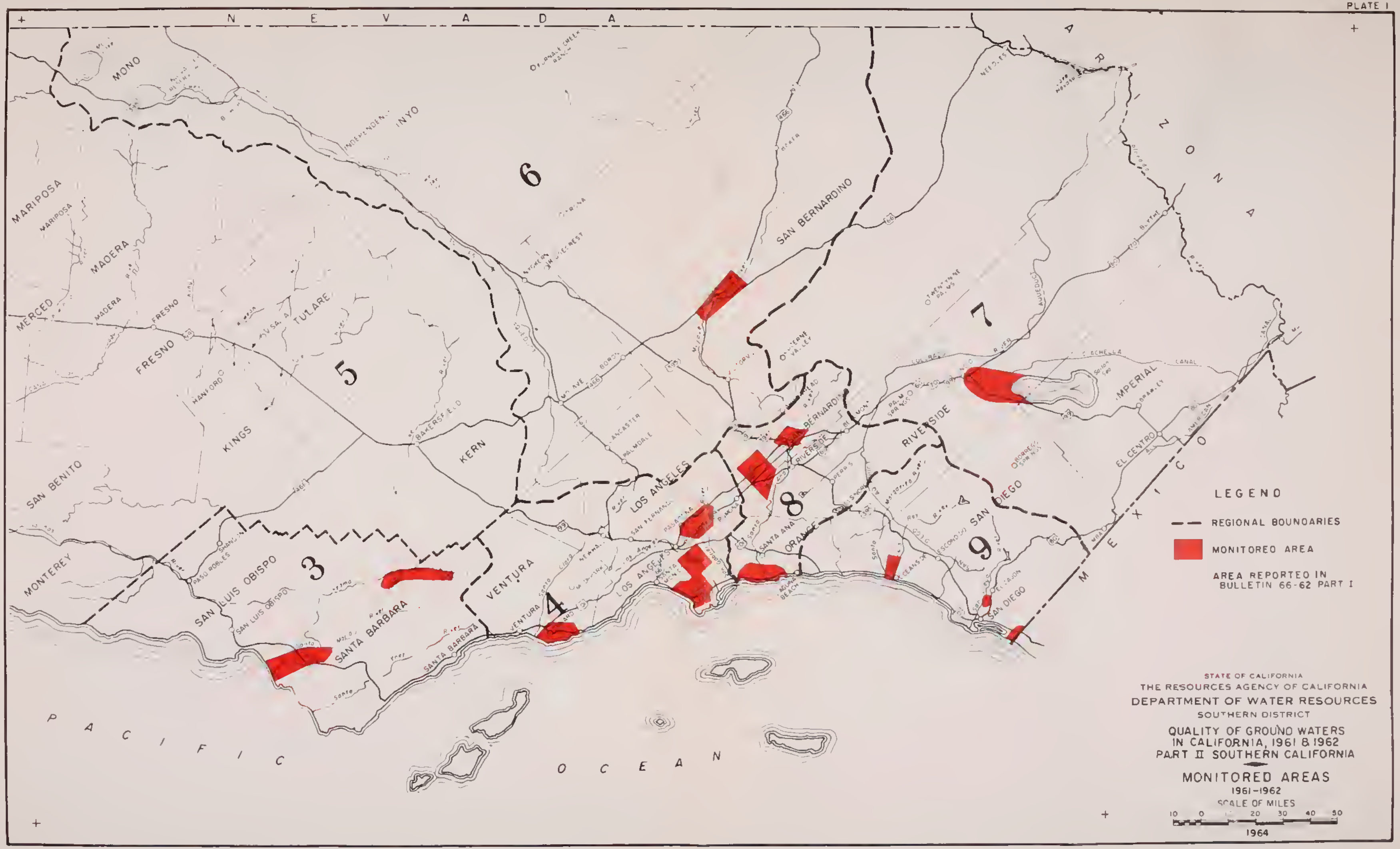
7-21	COACHELLA VALLEY (SOUTH END)

SANTA ANA REGION (NO. 8)

8-1.01	ANAHEIM BASIN PRESSURE AREA
8-2.01	CHINO BASIN
8-2.06	BUNKER HILL BASIN

SAN DIEGO REGION (NO. 9)

9-7.01	SAN LUIS REY VALLEY, MISSION BASIN
9-16	EL CAJON VALLEY
9-19	TIA JUANA VALLEY BASIN



LEGEND

— — REGIONAL BOUNDARIES

🟥 MONITORED AREA

AREA REPORTED IN
BULLETIN 66-62 PART I

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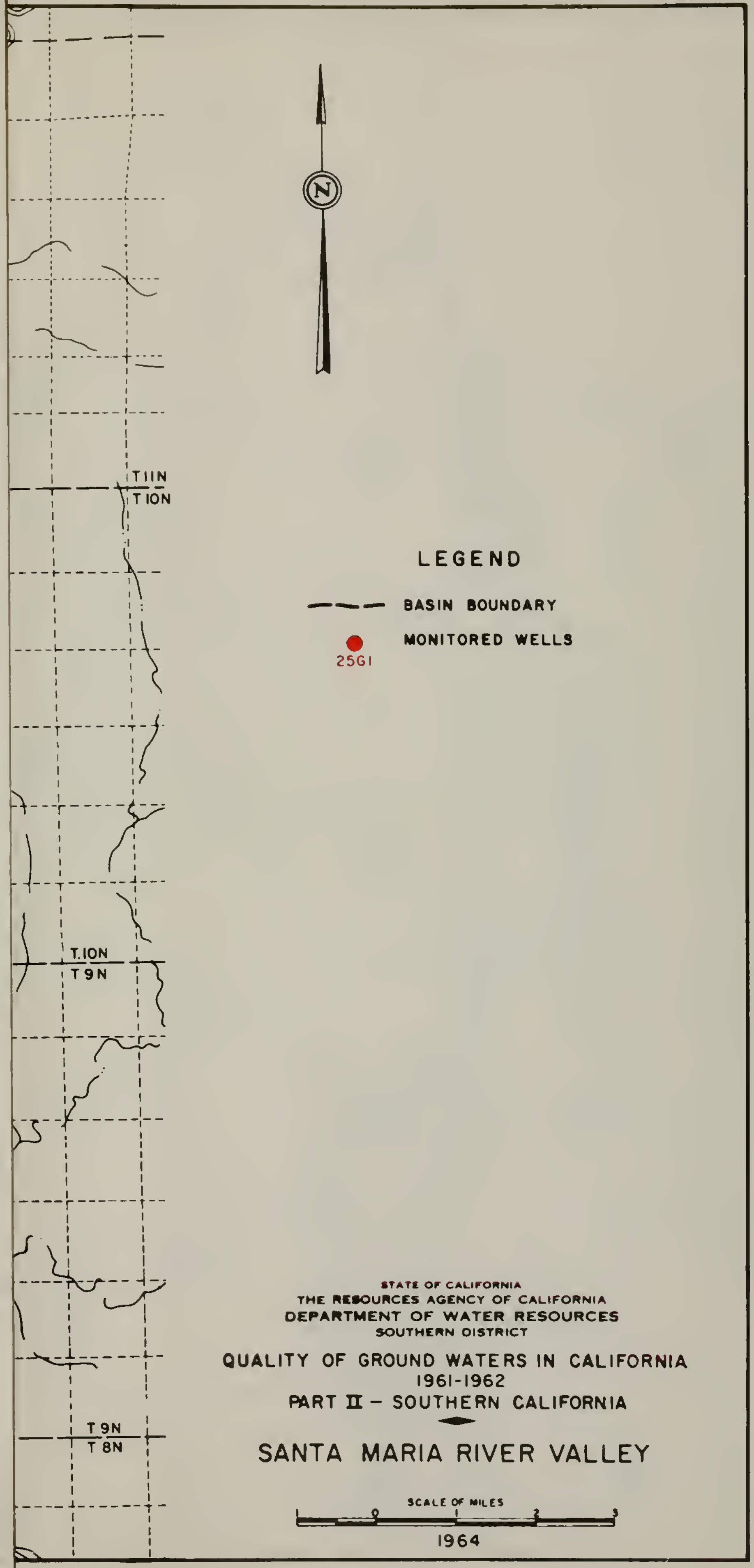
IN CALIFORNIA, 1961 & 1962
PART II SOUTHERN CALIFORNIA

MONITORED AREAS
1961-1962

SCALE OF MILES
10 0 10 20 30 40 50

1964

PLATE 2



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
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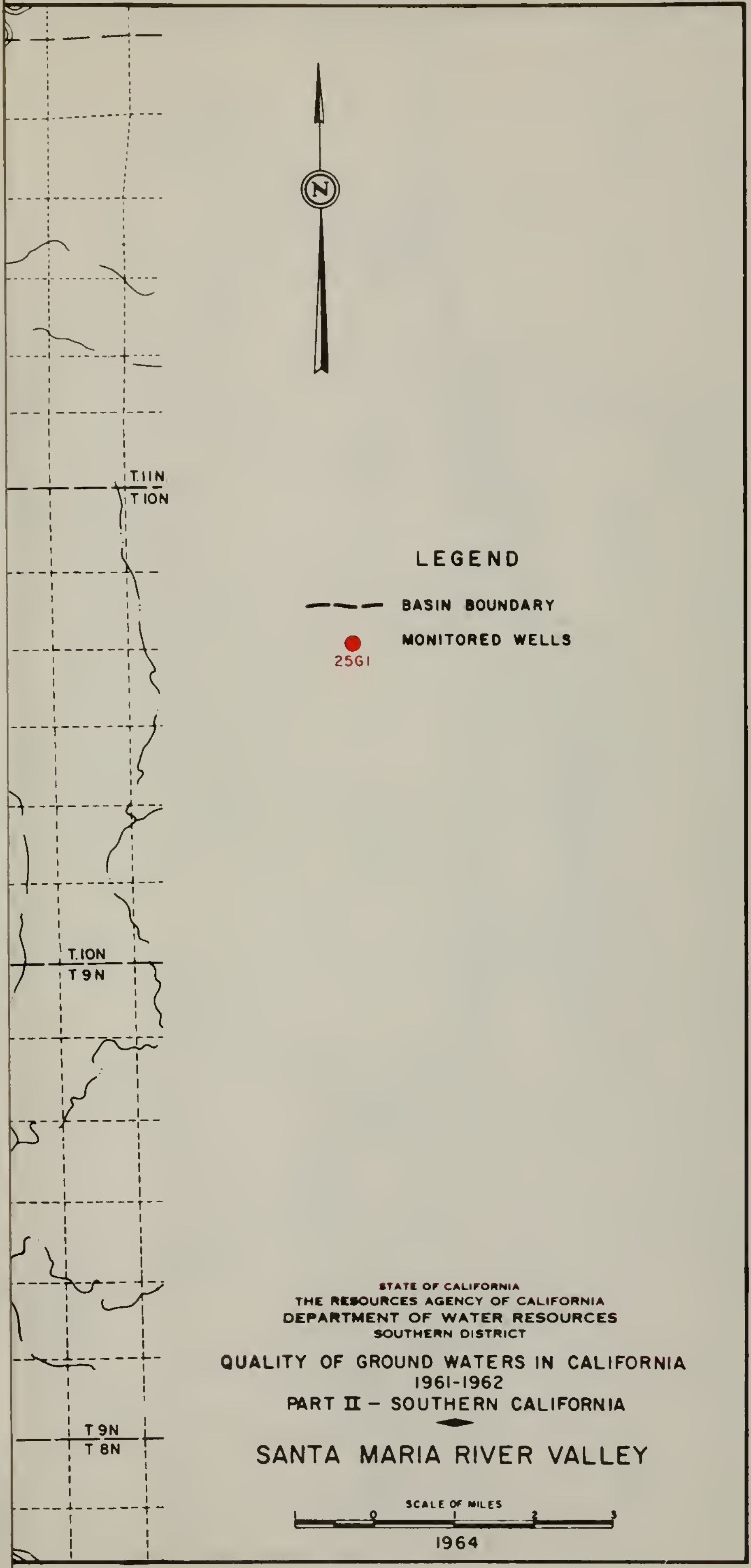
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

◆

SANTA MARIA RIVER VALLEY

1964



STATE OF CALIFORNIA
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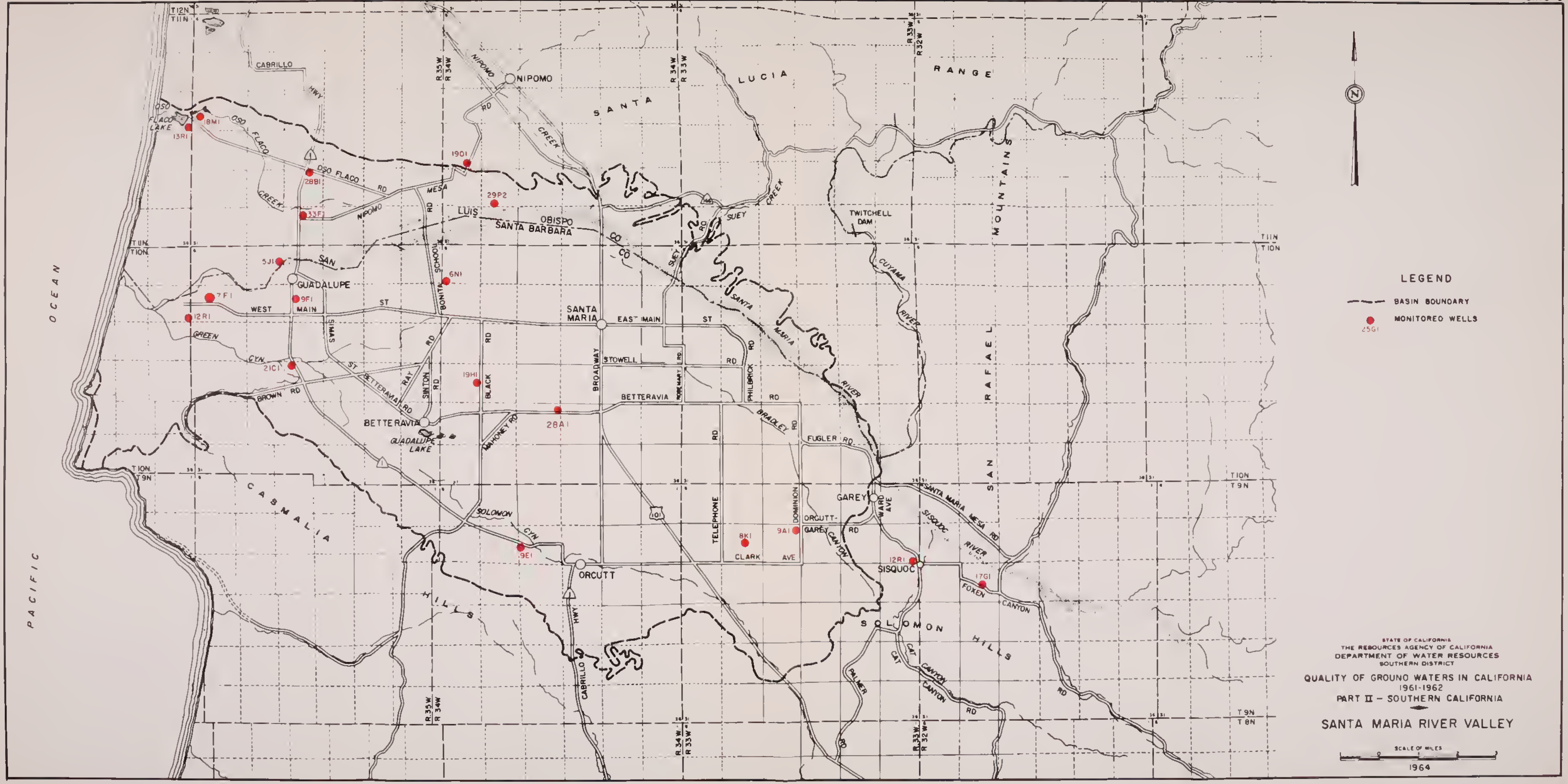
SOUTHERN DISTRICT

QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

◆

SANTA MARIA RIVER VALLEY

1964



STATE OF CALIFORNIA
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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
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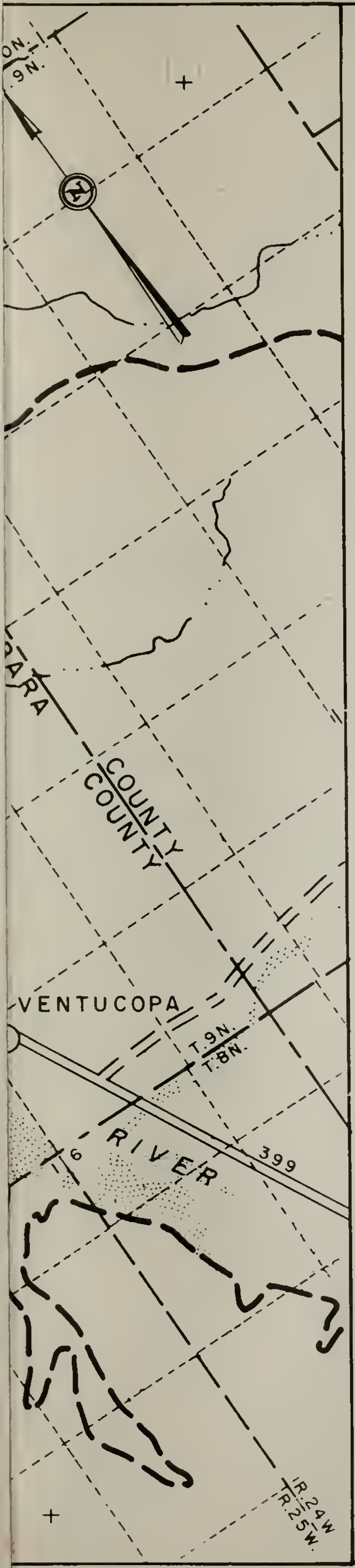
SANTA MARIA RIVER VALLEY

1964



LEGEND

— — BASIN BOUNDARY

● 11C1 MONITORED WELL

— — FAULT LINE

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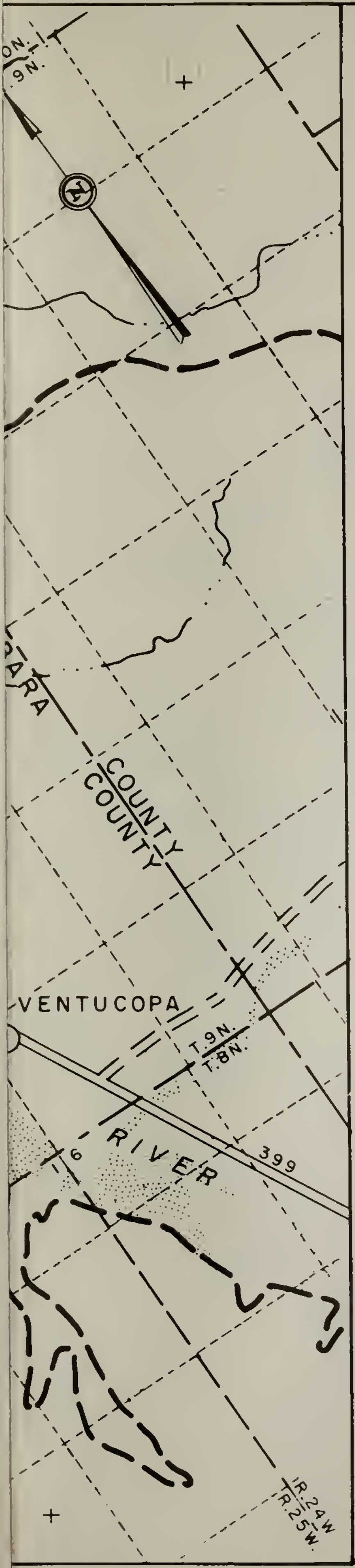
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

CUYAMA RIVER VALLEY

SCALE OF MILES
½ 0

1964

PLATE 3



LEGEND

— — BASIN BOUNDARY

● 11C1 MONITORED WELL

— — FAULT LINE

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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

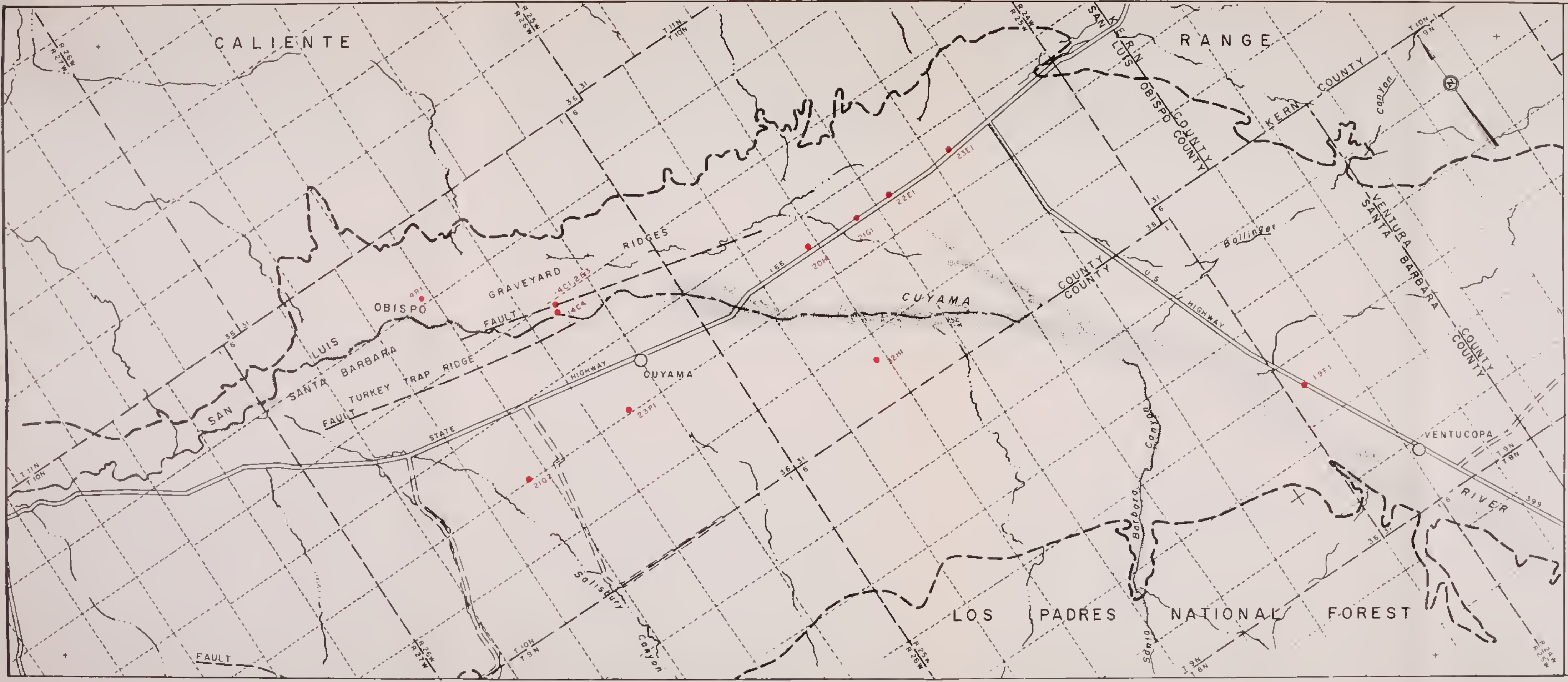
◆

CUYAMA RIVER VALLEY

SCALE OF MILES
1 ½ 0 1

1964

PLATE 3



LEGEND

— — BASIN BOUNDARY

● 11C1 MONITORED WELL

— — FAULT LINE

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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
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CUYAMA RIVER VALLEY

SCALE OF MILES
½ 0

1964

PLATE 4

LEGEND

▬ ▬ ▬ BASIN BOUNDARY

● 29F1 MONITORED WELL

▨ AREA OF CHLORIDE CONCENTRATIONS GREATER THAN 500 PPM

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UALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

◆

OXNARD PLAIN PRESSURE AREA

SCALE OF MILES
1 ½ 0

1964

LEGEND

— — — BASIN BOUNDARY

● 29F1 MONITORED WELL

▨ AREA OF CHLORIDE CONCENTRATIONS GREATER THAN 500 PPM

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
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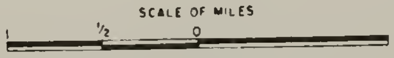
SOUTHERN DISTRICT

UALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

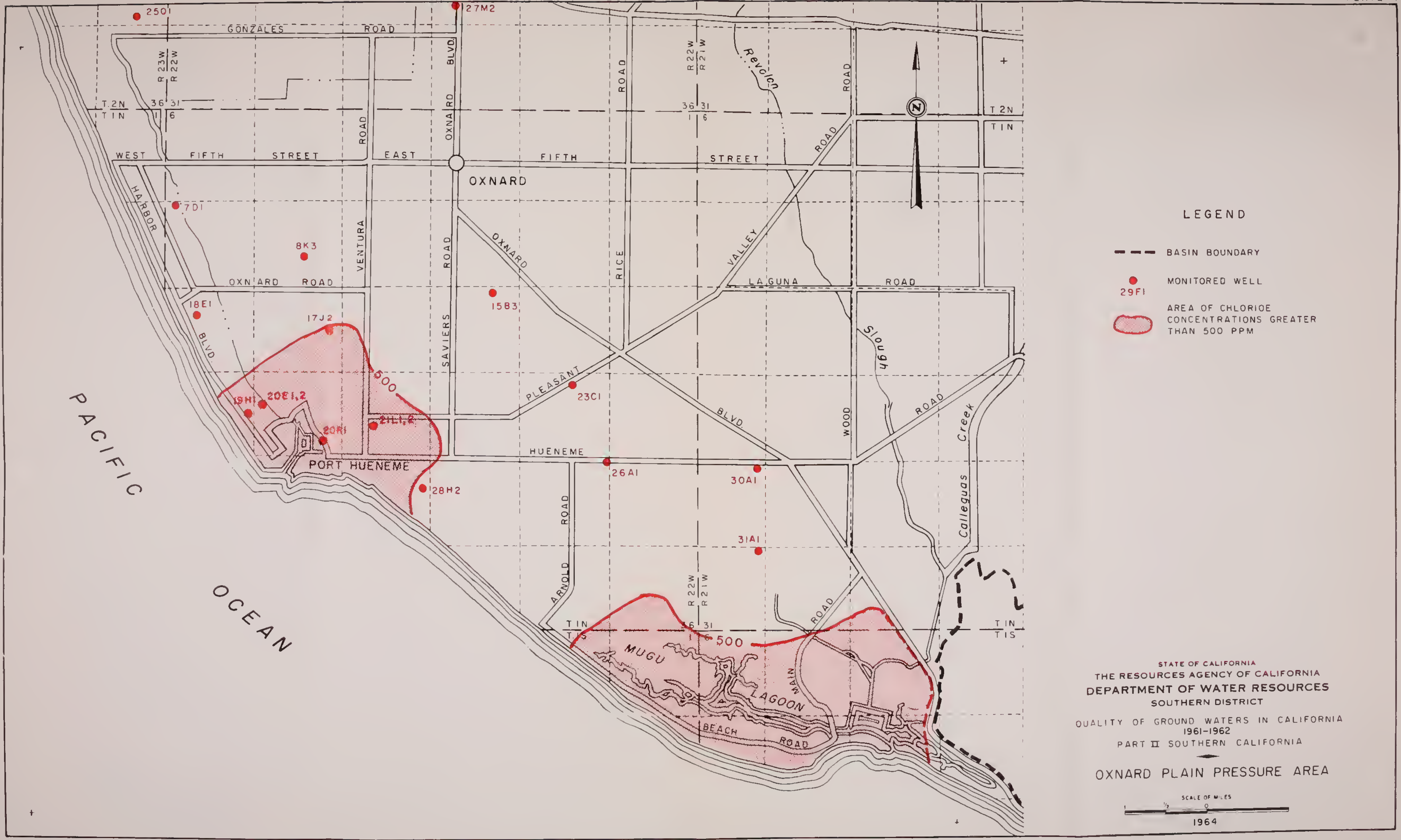
◆

OXNARD PLAIN PRESSURE AREA



1964

PLATE 4



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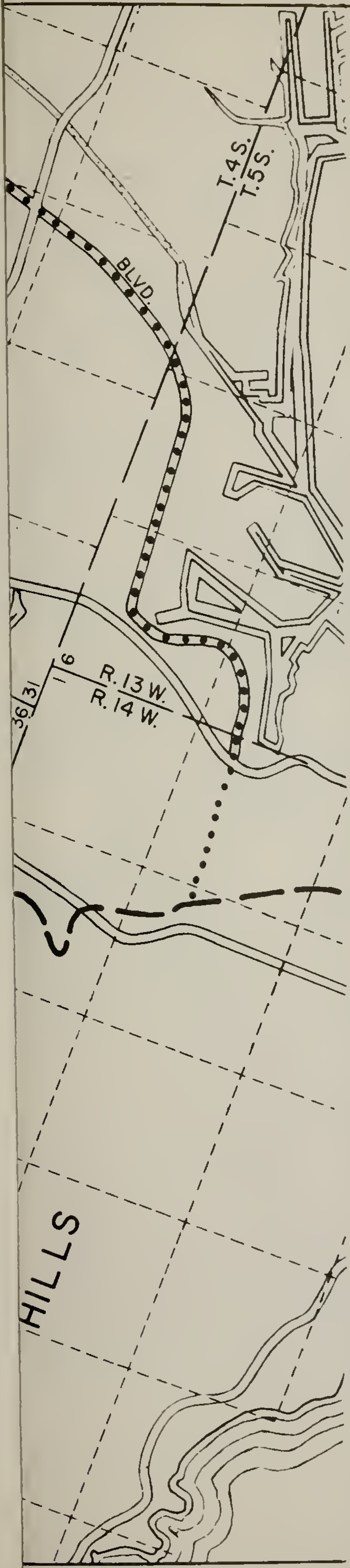
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

OXNARD PLAIN PRESSURE AREA

SCALE OF MILES
1 ½ 0

1964

PLATE 5



LEGEND

— — BASIN BOUNDARY

• • • • • • • • APPROXIMATE LIMITS OF MONITORED AREA

● 7K2 MONITORED WELL

— — FAULT LINES

⬭ AREA OF CHLORIDE CONCENTRATION GREATER THAN 500 PPM

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QUALITY OF GROUND WATERS IN CALIFORNIA
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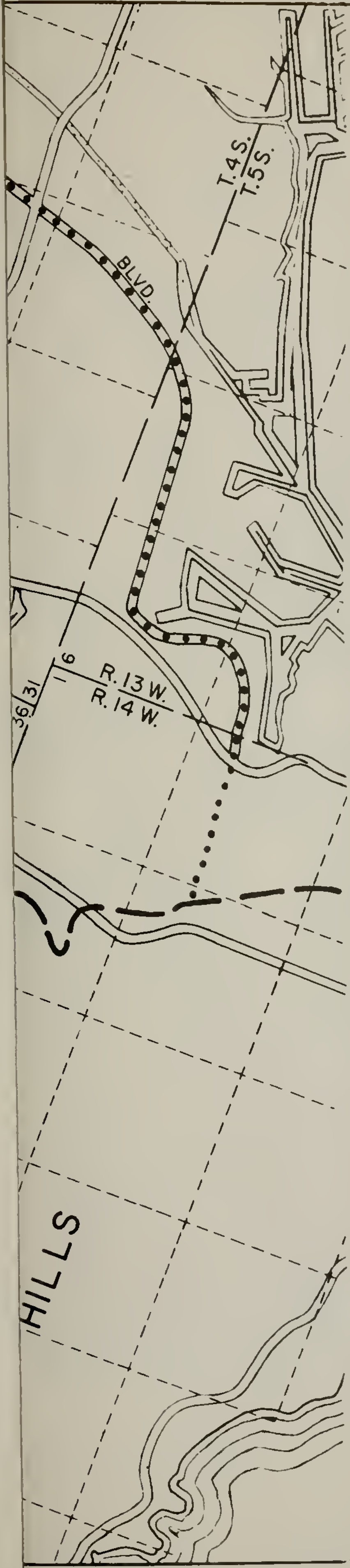
PART II — SOUTHERN CALIFORNIA

WEST COAST BASIN

SCALE OF MILES
1/2 0

1964

PLATE 5



LEGEND

▬ ▬ BASIN BOUNDARY

• • • • • • • • APPROXIMATE LIMITS OF MONITORED AREA

● 7K2 MONITORED WELL

— — FAULT LINES

⬭ AREA OF CHLORIDE CONCENTRATION GREATER THAN 500 PPM

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QUALITY OF GROUND WATERS IN CALIFORNIA
1961–1962

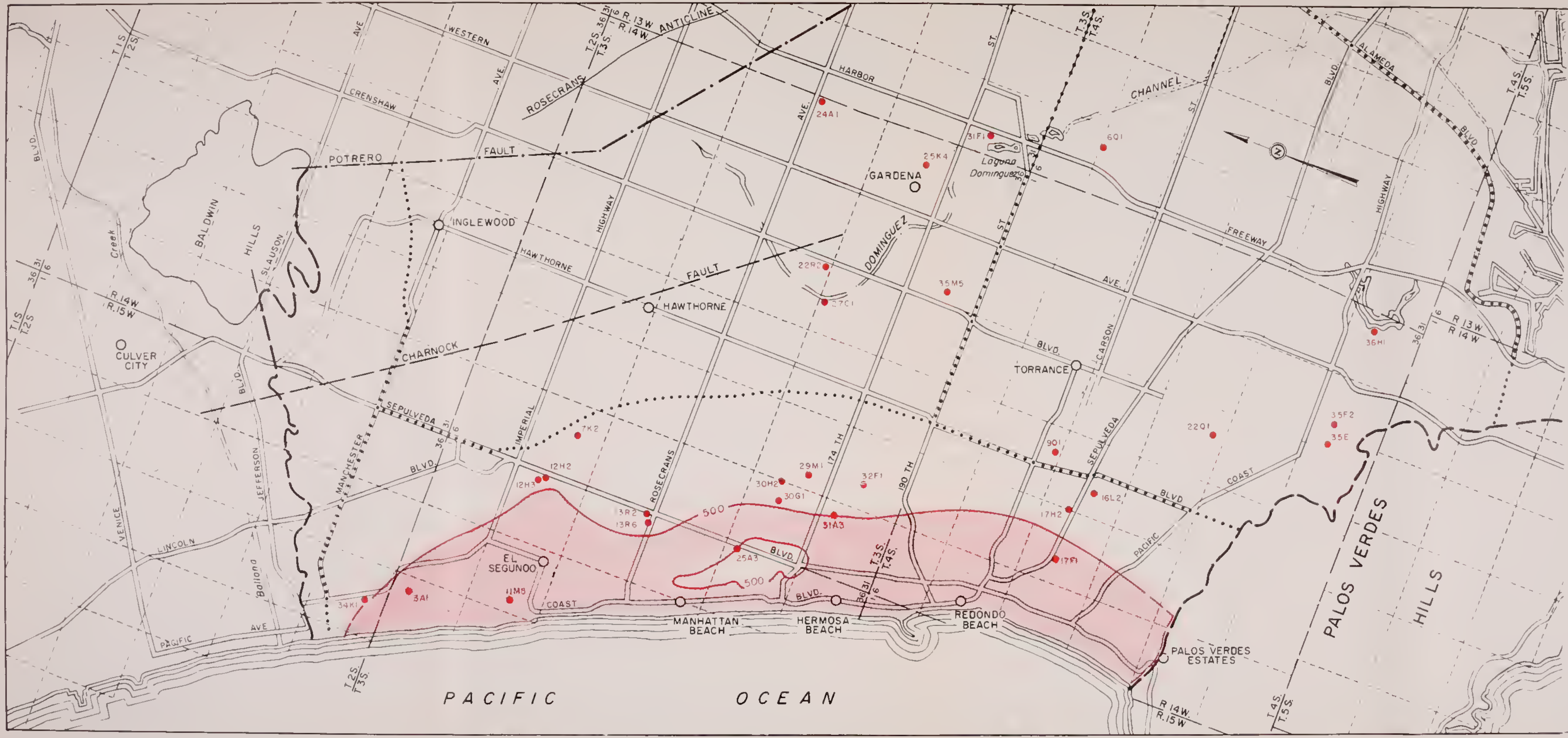
PART II – SOUTHERN CALIFORNIA

WEST COAST BASIN

SCALE OF MILES
1/2 0 1

1964

PLATE 5



LEGEND
BASIN BOUNDARY
APPROXIMATE LIMITS OF MONITORED AREA
MONITORED WELL
FAULT LINES
AREA OF CHLORIDE CONCENTRATION GREATER THAN 500 PPM

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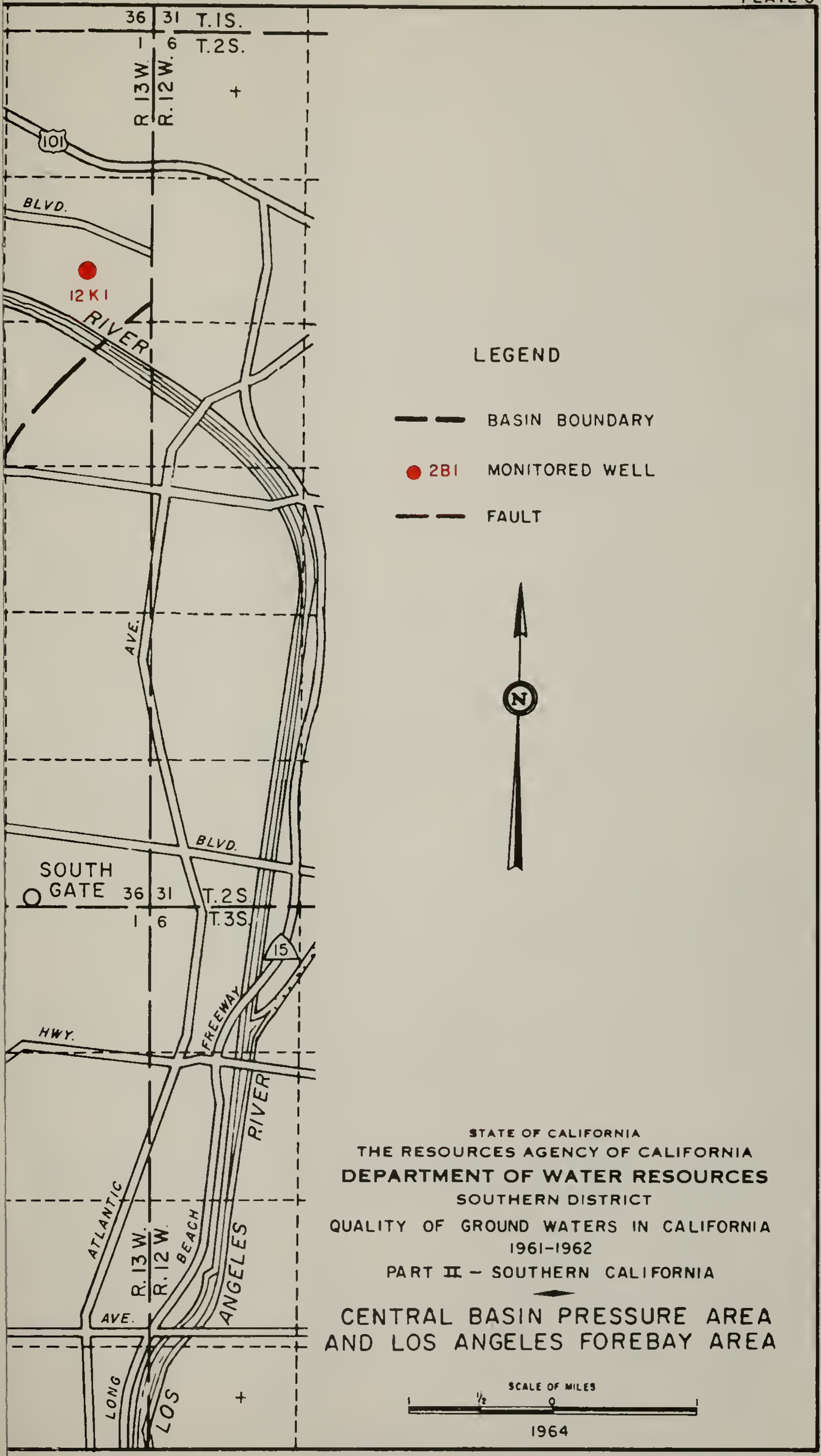
WEST COAST BASIN

SCALE OF MILES
1/2 0 1

1964

PLATE 6



STATE OF CALIFORNIA
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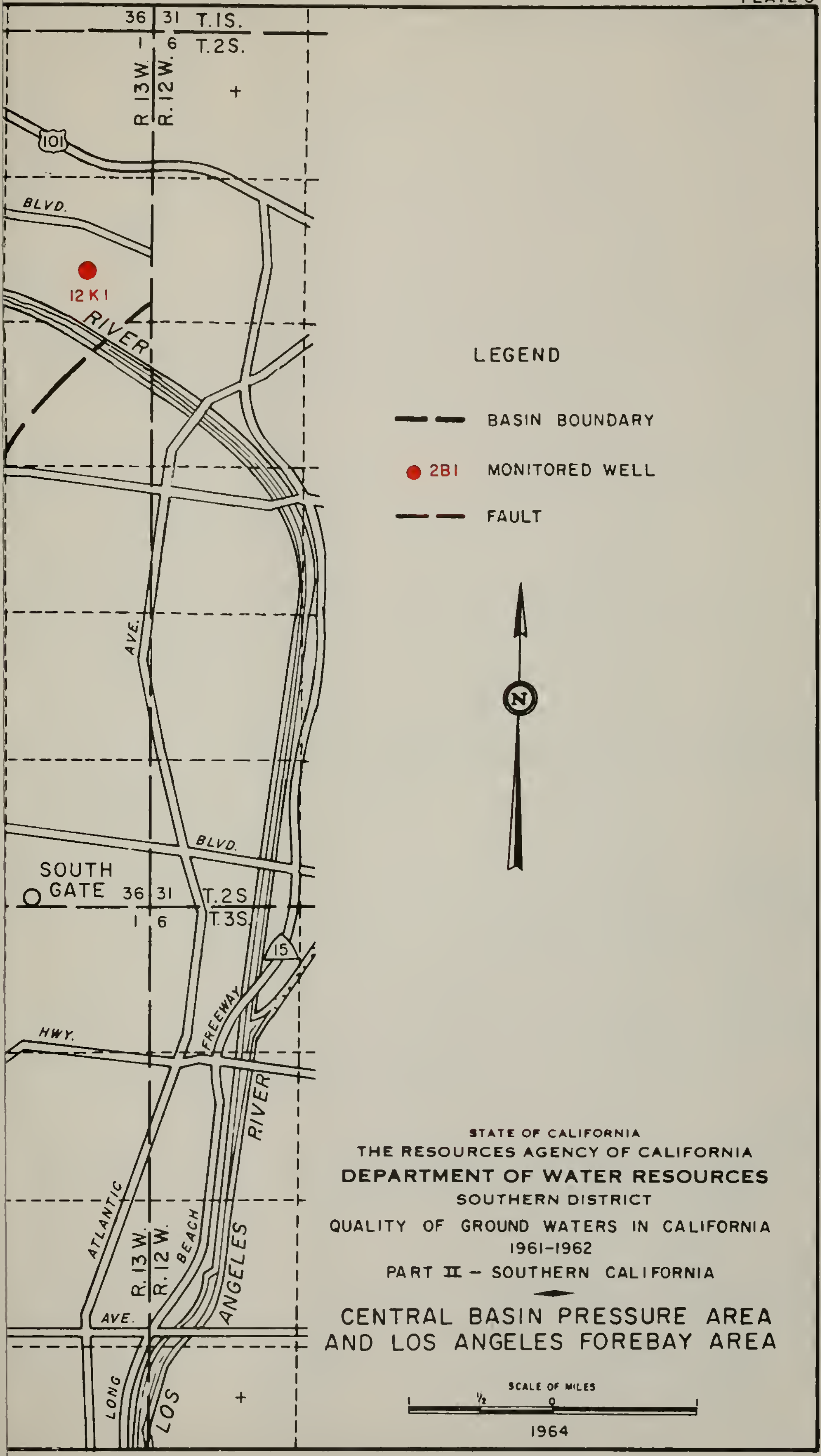
QUALITY OF GROUND WATERS IN CALIFORNIA
1961–1962
PART II – SOUTHERN CALIFORNIA

CENTRAL BASIN PRESSURE AREA AND LOS ANGELES FOREBAY AREA

1964

PLATE 6



LEGEND

— — BASIN BOUNDARY

● 2B1 MONITORED WELL

— — FAULT

STATE OF CALIFORNIA
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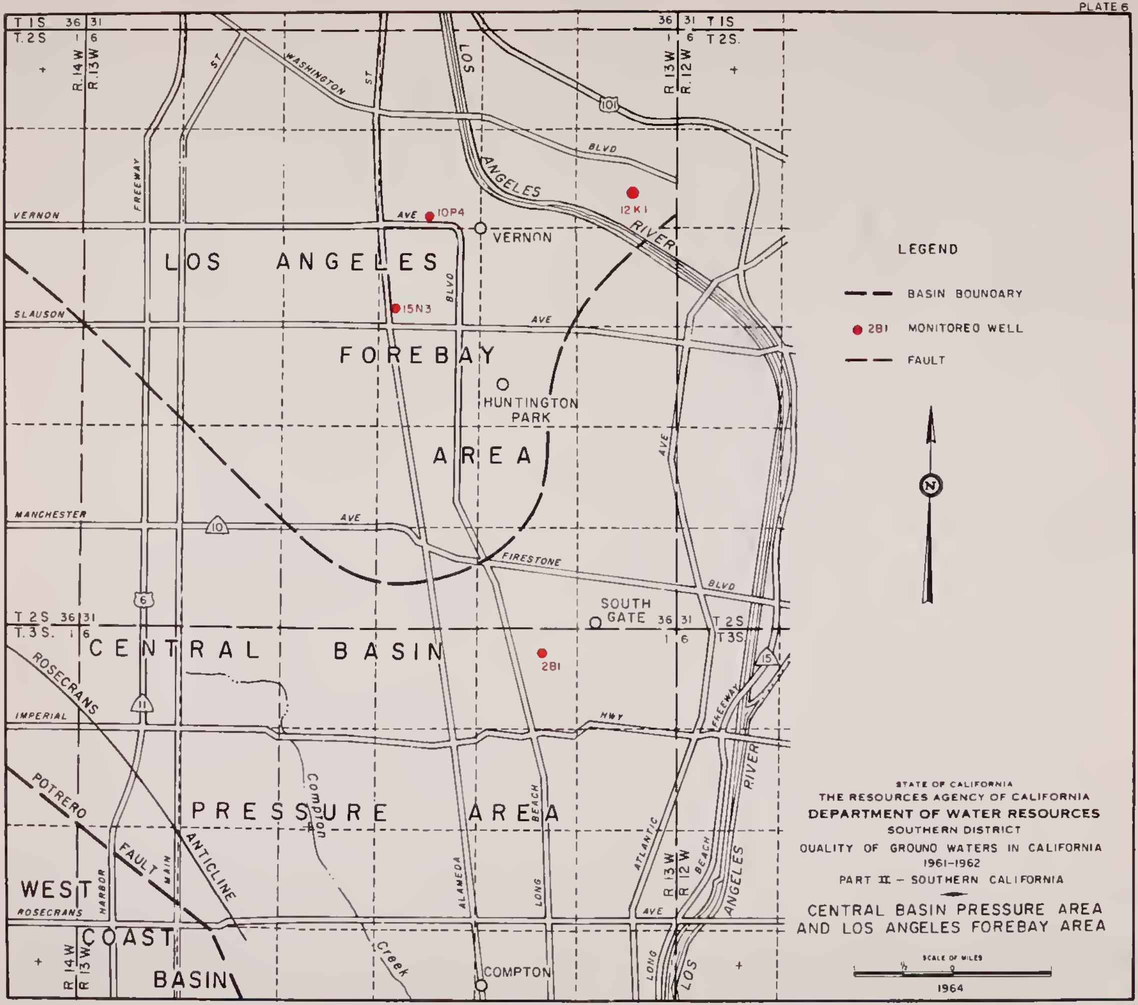
QUALITY OF GROUND WATERS IN CALIFORNIA
1961–1962
PART II – SOUTHERN CALIFORNIA

CENTRAL BASIN PRESSURE AREA
AND LOS ANGELES FOREBAY AREA

SCALE OF MILES
½ 0

1964



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
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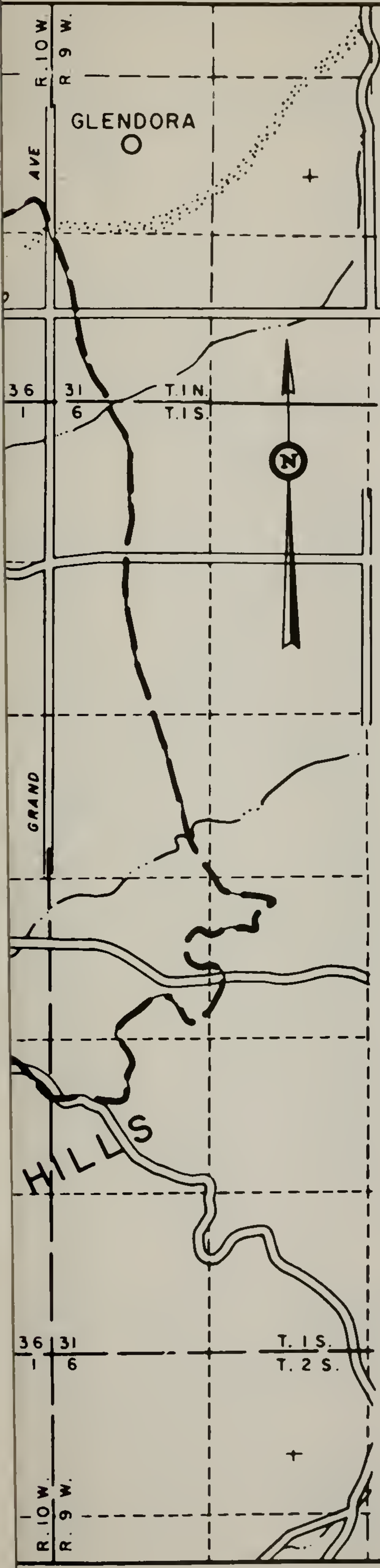
1961–1962
PART II – SOUTHERN CALIFORNIA

CENTRAL BASIN PRESSURE AREA
AND LOS ANGELES FOREBAY AREA

1964

PLATE 7



LEGEND

▬ ▬ BASIN BOUNDARY

● 7A1 MONITORED WELL

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QUALITY OF GROUND WATERS IN CALIFORNIA
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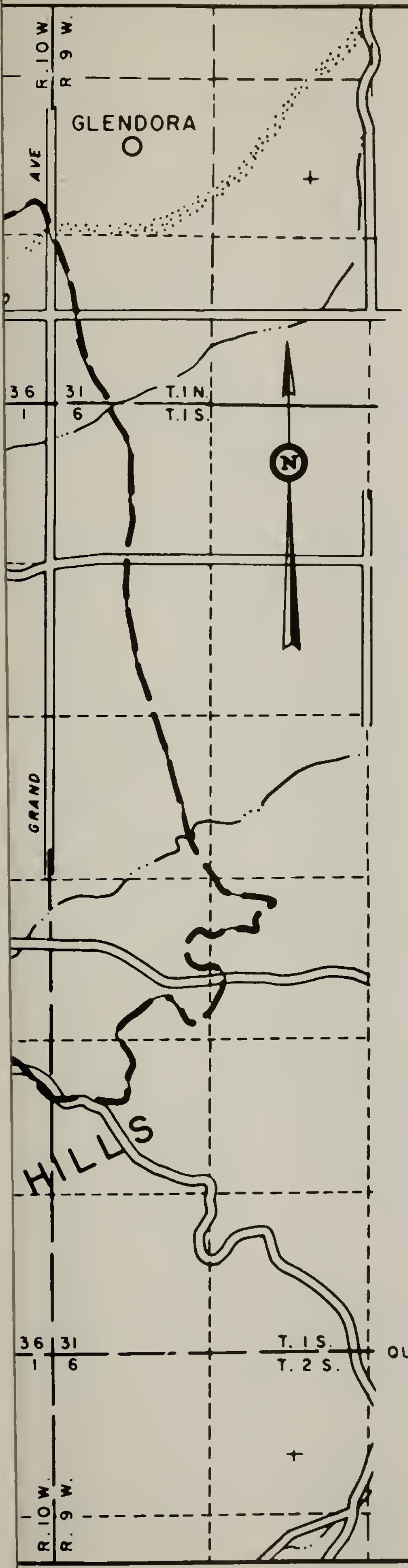
PART II SOUTHERN CALIFORNIA

◆

MAIN SAN GABRIEL BASIN

SCALE OF MILES
½ 0

1964



LEGEND

▬ ▬ BASIN BOUNDARY

● 7A1 MONITORED WELL

STATE OF CALIFORNIA
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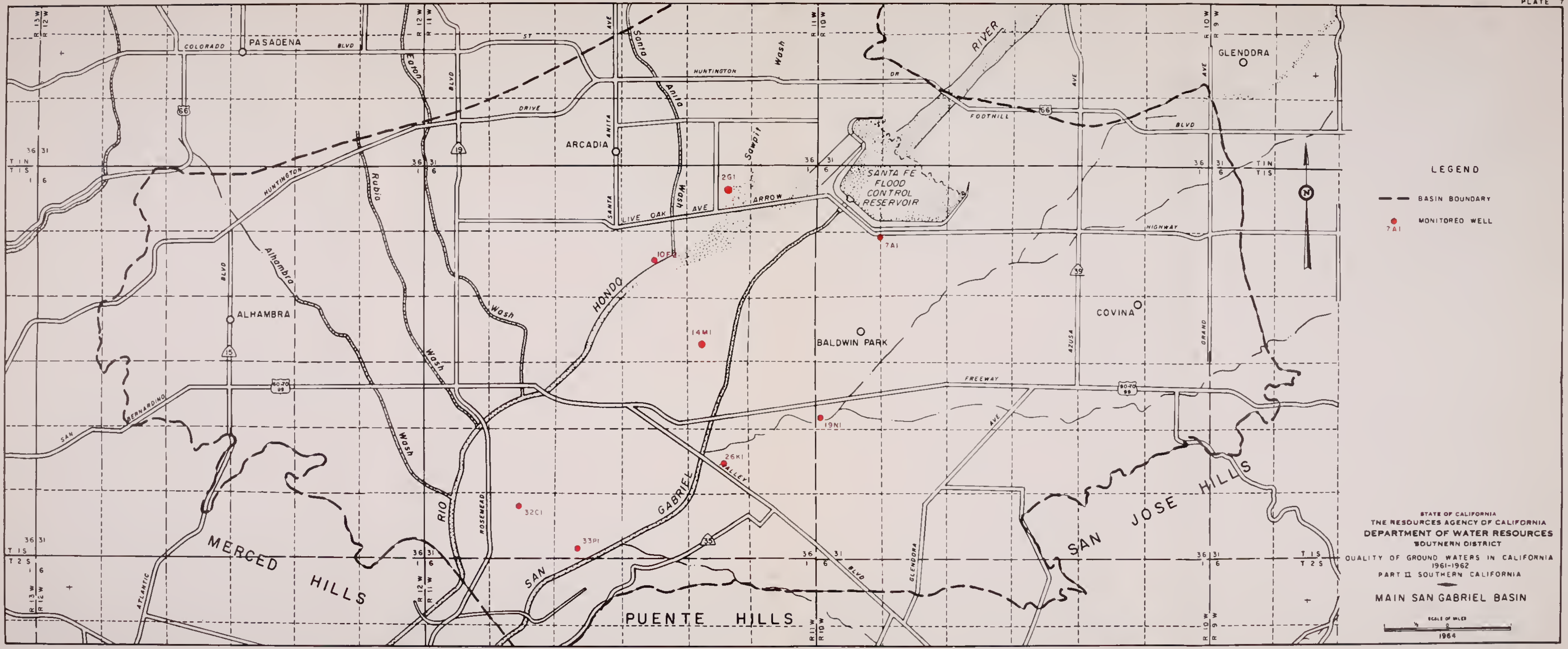
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

◆

MAIN SAN GABRIEL BASIN

SCALE OF MILES
½ 0
1964



STATE OF CALIFORNIA
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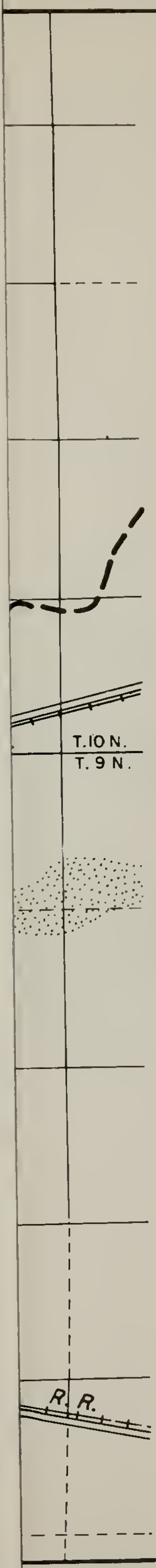
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

MAIN SAN GABRIEL BASIN

SCALE OF MILES
½ 0
1964



LEGEND

— —	BASIN BOUNDARY
● 1OG1	MONITORED WELL
○	AREA WHERE GROUND WATER IS AFFECTED BY TASTES AND ODORS

STATE OF CALIFORNIA
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QUALITY OF GROUND WATERS IN CALIFORNIA
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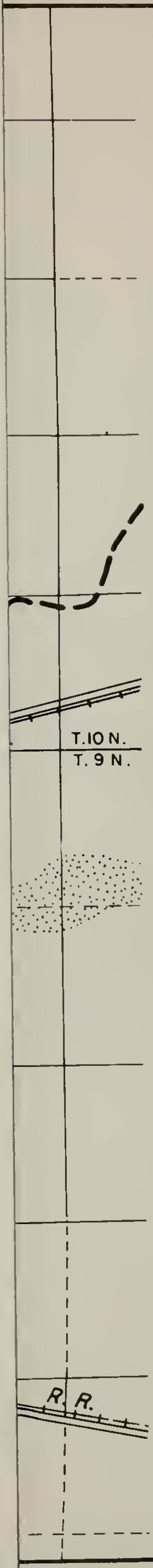
◆

LOWER MOJAVE RIVER VALLEY
BARSTOW TO YERMO

SCALE OF MILES
1 ½ 0 1

1964

PLATE 8



LEGEND

— — BASIN BOUNDARY

● 10G1 MONITORED WELL

○ AREA WHERE GROUND WATER IS AFFECTED BY TASTES AND ODORS

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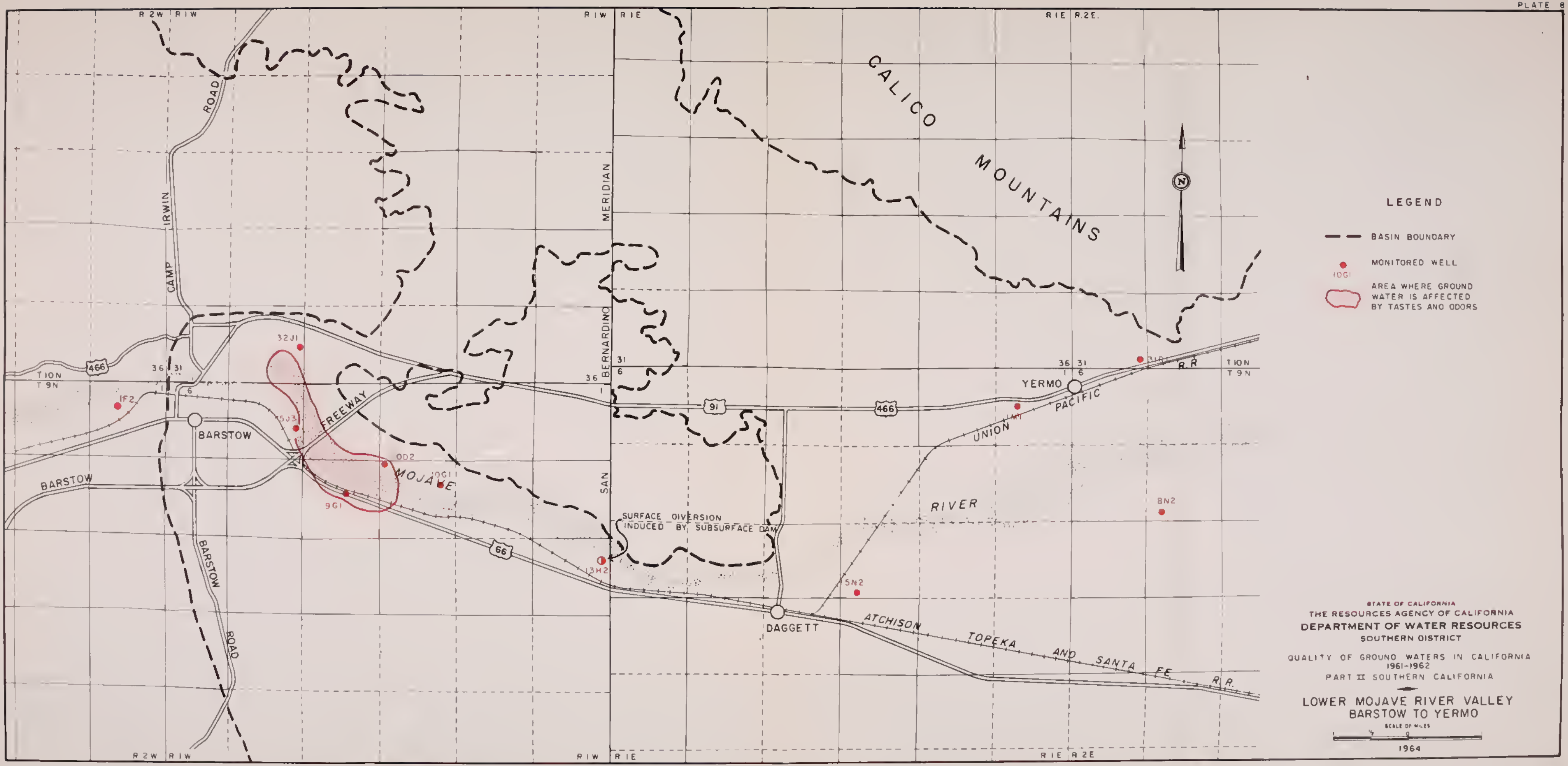
◆

LOWER MOJAVE RIVER VALLEY
BARSTOW TO YERMO

SCALE OF MILES
1 ½ 0 1

1964

PLATE 8



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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II SOUTHERN CALIFORNIA

LOWER MOJAVE RIVER VALLEY
BARSTOW TO YERMO

1964

PLATE 9

LEGEND

— — — BASIN BOUNDARY

16K1 ● MONITORED WELL

— — FAULT LINE

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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

COACHELLA VALLEY (SOUTH END)

SCALE OF MILES
0 1 2 3

1964

PLATE 9

LEGEND

— — —	BASIN BOUNDARY
16K1 ●	MONITORED WELL
— —	FAULT LINE

STATE OF CALIFORNIA
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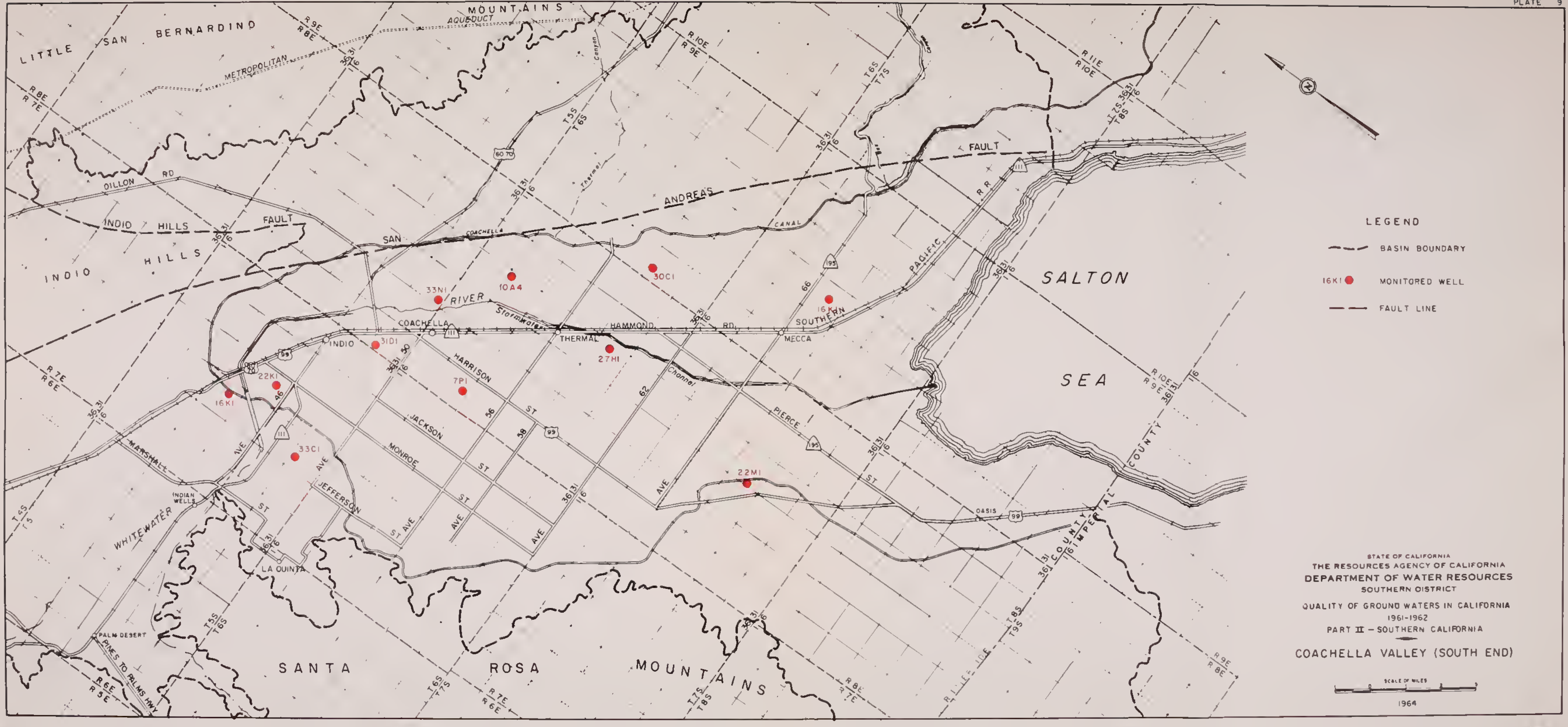
1961-1962
PART II – SOUTHERN CALIFORNIA

COACHELLA VALLEY (SOUTH END)

SCALE OF MILES
0 1 2 3

1964

PLATE 9



STATE OF CALIFORNIA
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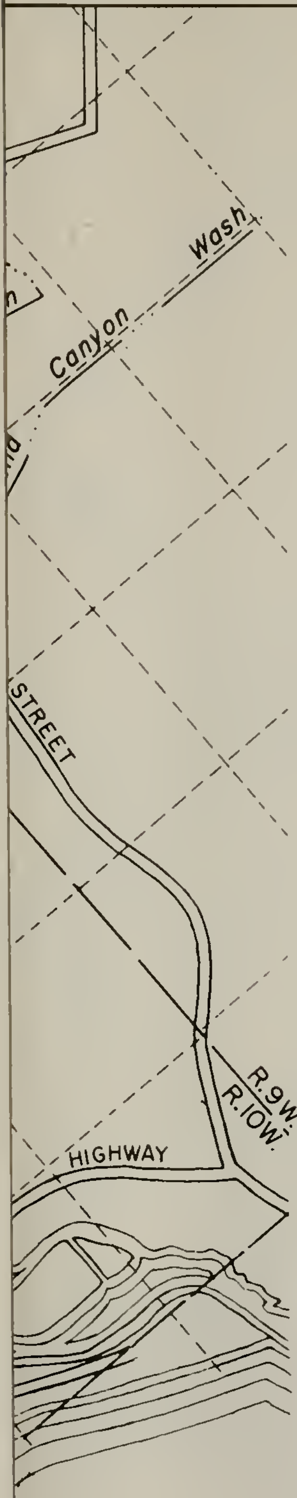
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

COACHELLA VALLEY (SOUTH END)

1964

PLATE 10



LEGEND

— — — — BASIN BOUNDARY

3R2 ● MONITORED WELL

—— —— FAULT LINES

▨ AREA OF CHLORIDE CONCENTRATIONS GREATER THAN 500 PPM

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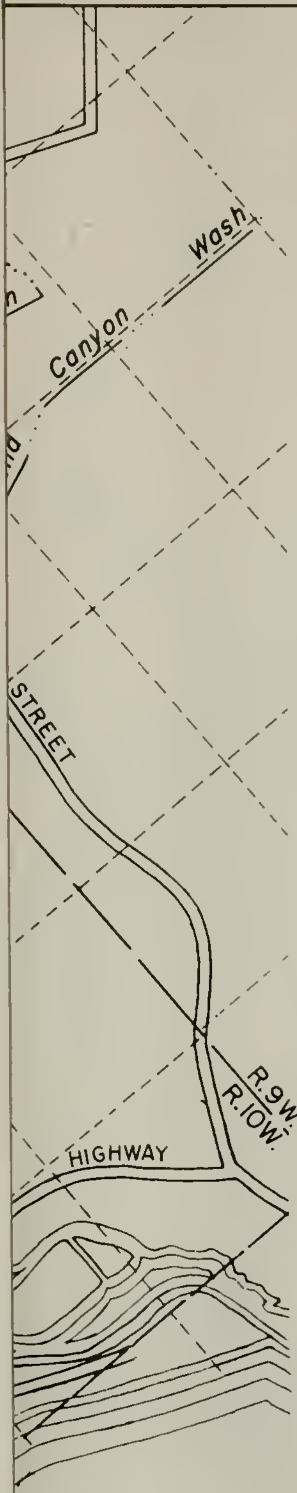
1961-1962
PART II — SOUTHERN CALIFORNIA

ANAHEIM BASIN PRESSURE AREA

SCALE OF MILES
1 ½ 0 1

1964



LEGEND

- - - - BASIN BOUNDARY

3R2 ● MONITORED WELL

— — FAULT LINES

▨ AREA OF CHLORIDE CONCENTRATIONS GREATER THAN 500 PPM

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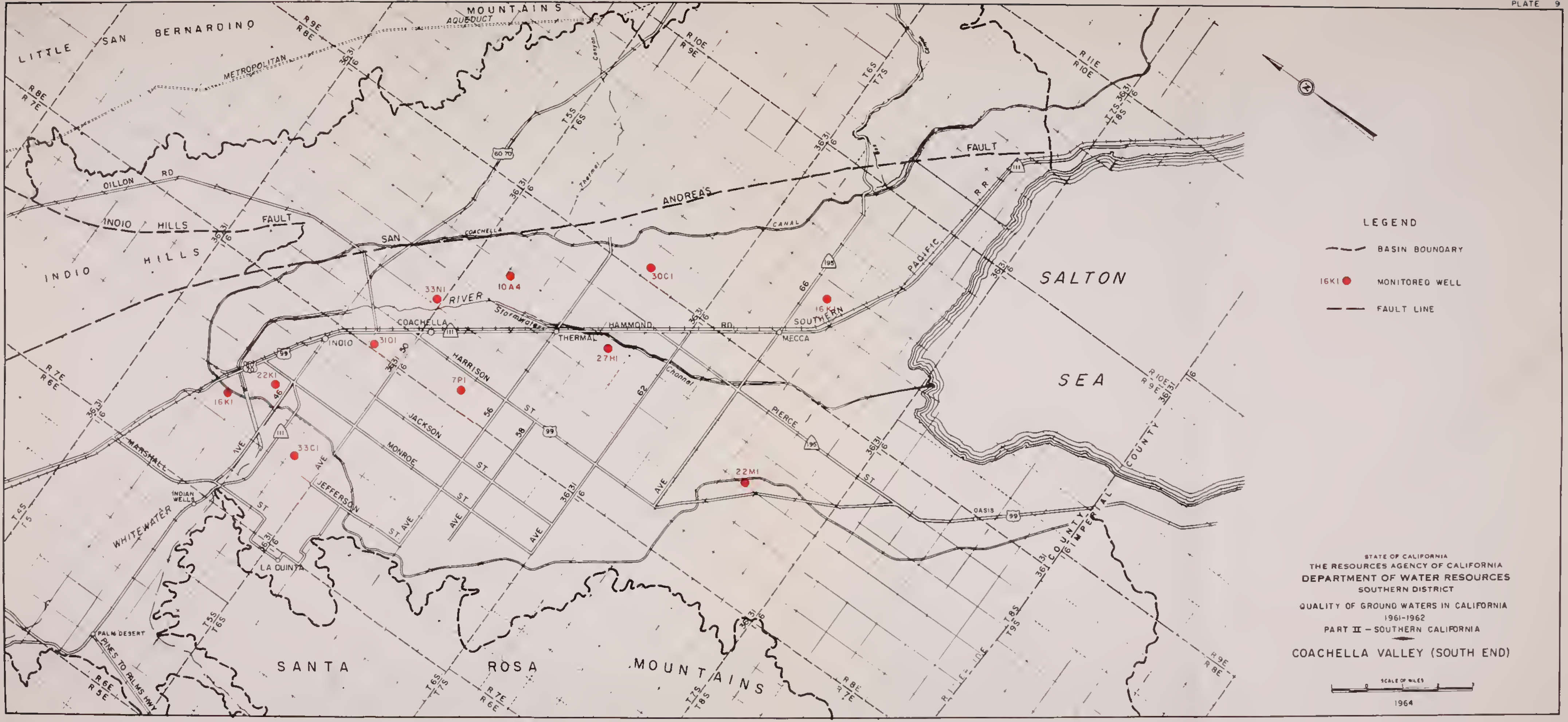
1961-1962
PART II — SOUTHERN CALIFORNIA

ANAHEIM BASIN PRESSURE AREA

SCALE OF MILES
1 ½ 0 1

1964

PLATE 9



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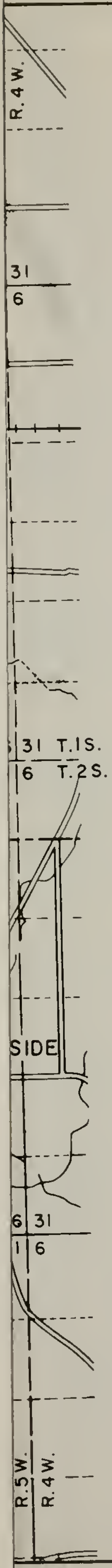
QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

COACHELLA VALLEY (SOUTH END)

1964

PLATE II



LEGEND

▬ ▬ BASIN BOUNDARY

● 10M1 MONITORED WELL

— — FAULT LINE

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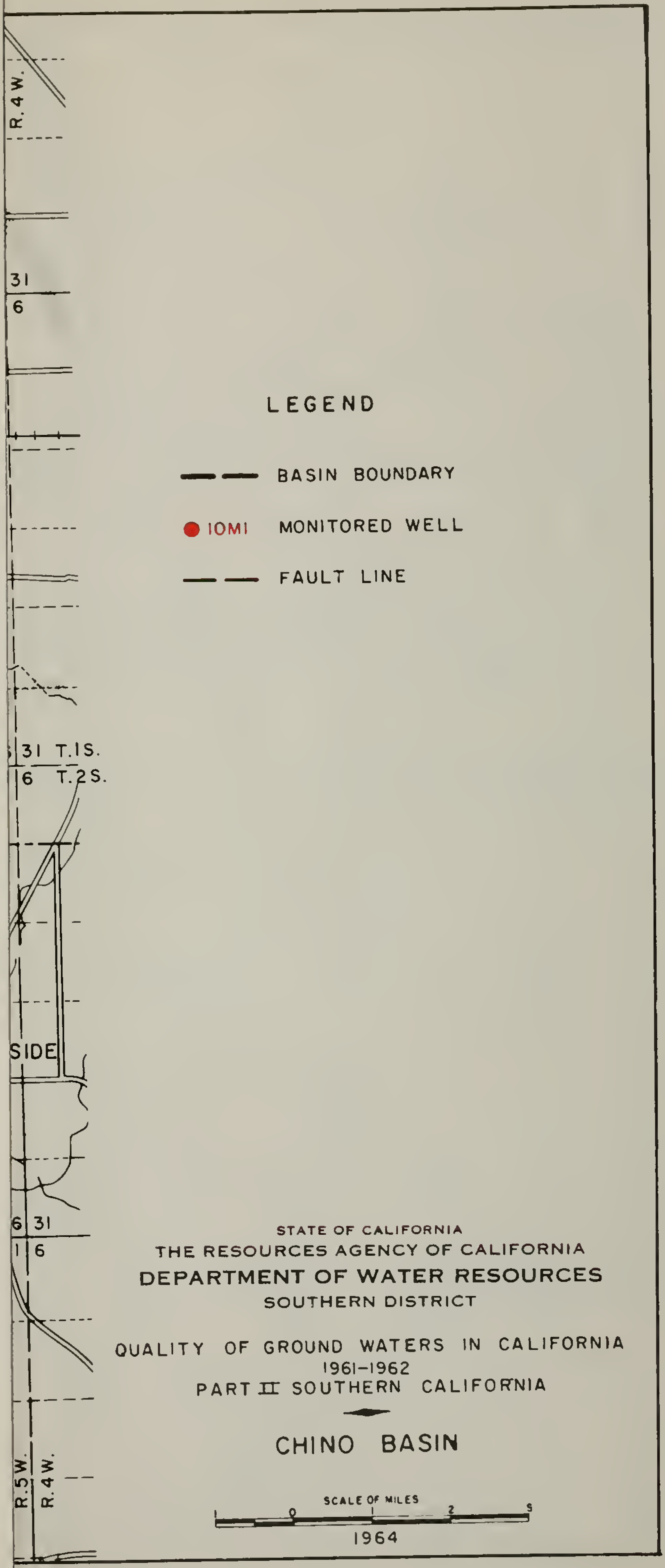
QUALITY OF GROUND WATERS IN CALIFORNIA
1961–1962
PART II SOUTHERN CALIFORNIA

CHINO BASIN

SCALE OF MILES
1 0 1 2 3

1964

PLATE II



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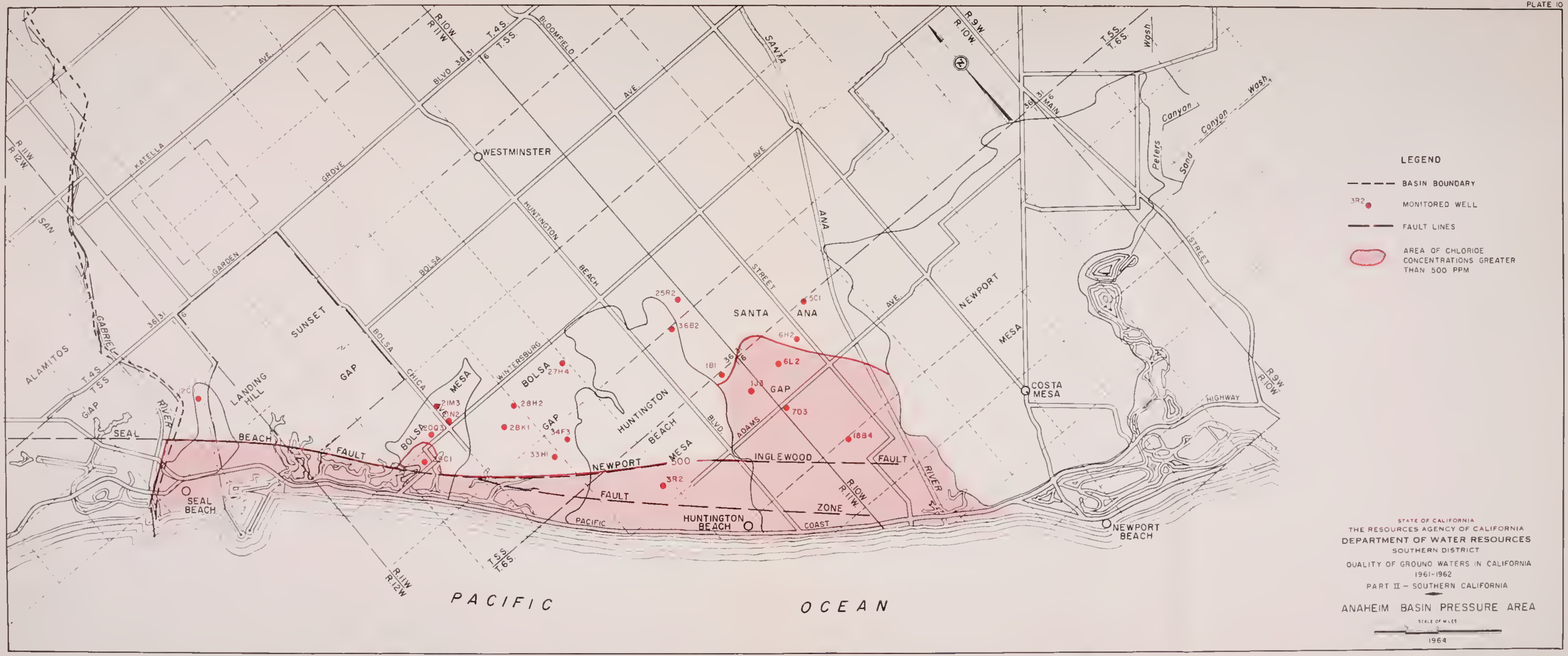
QUALITY OF GROUND WATERS IN CALIFORNIA
1961–1962
PART II SOUTHERN CALIFORNIA

CHINO BASIN

1964



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QUALITY OF GROUND WATERS IN CALIFORNIA
1961-1962
PART II – SOUTHERN CALIFORNIA

ANAHEIM BASIN PRESSURE AREA

SCALE OF MILES
1964

PLATE 12

LEGEND

〰	BASIN BOUNDARY
9E2 ●	MONITORED WELL

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QUALITY OF GROUND WATERS IN CALIFORNIA
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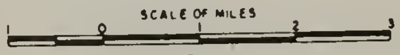
BUNKER HILL BASIN



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LEGEND

～	BASIN BOUNDARY
9E2 ●	MONITORED WELL

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QUALITY OF GROUND WATERS IN CALIFORNIA
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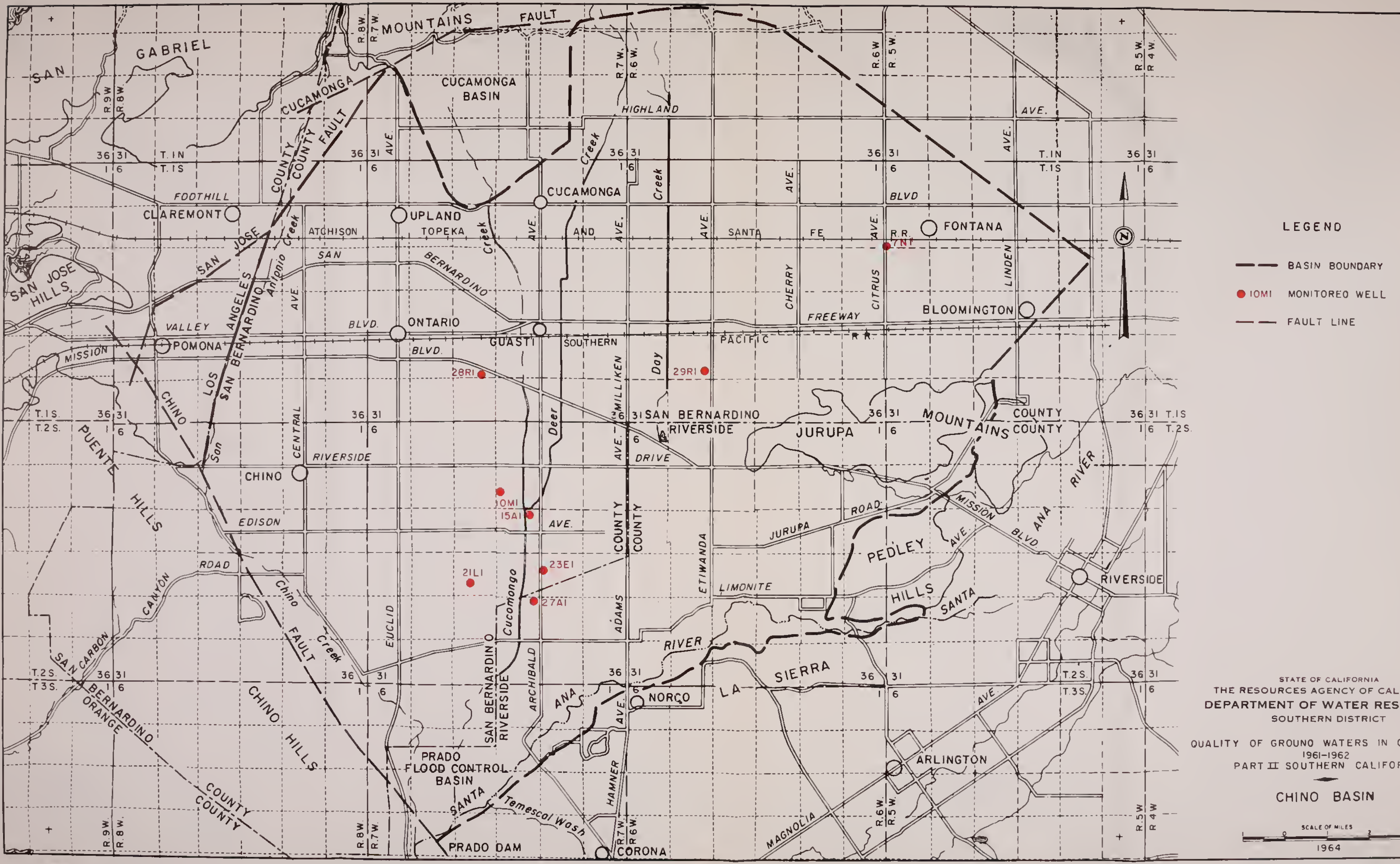
BUNKER HILL BASIN

SCALE OF MILES
1 0 1 2 3

1964

PLATE II



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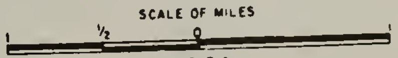

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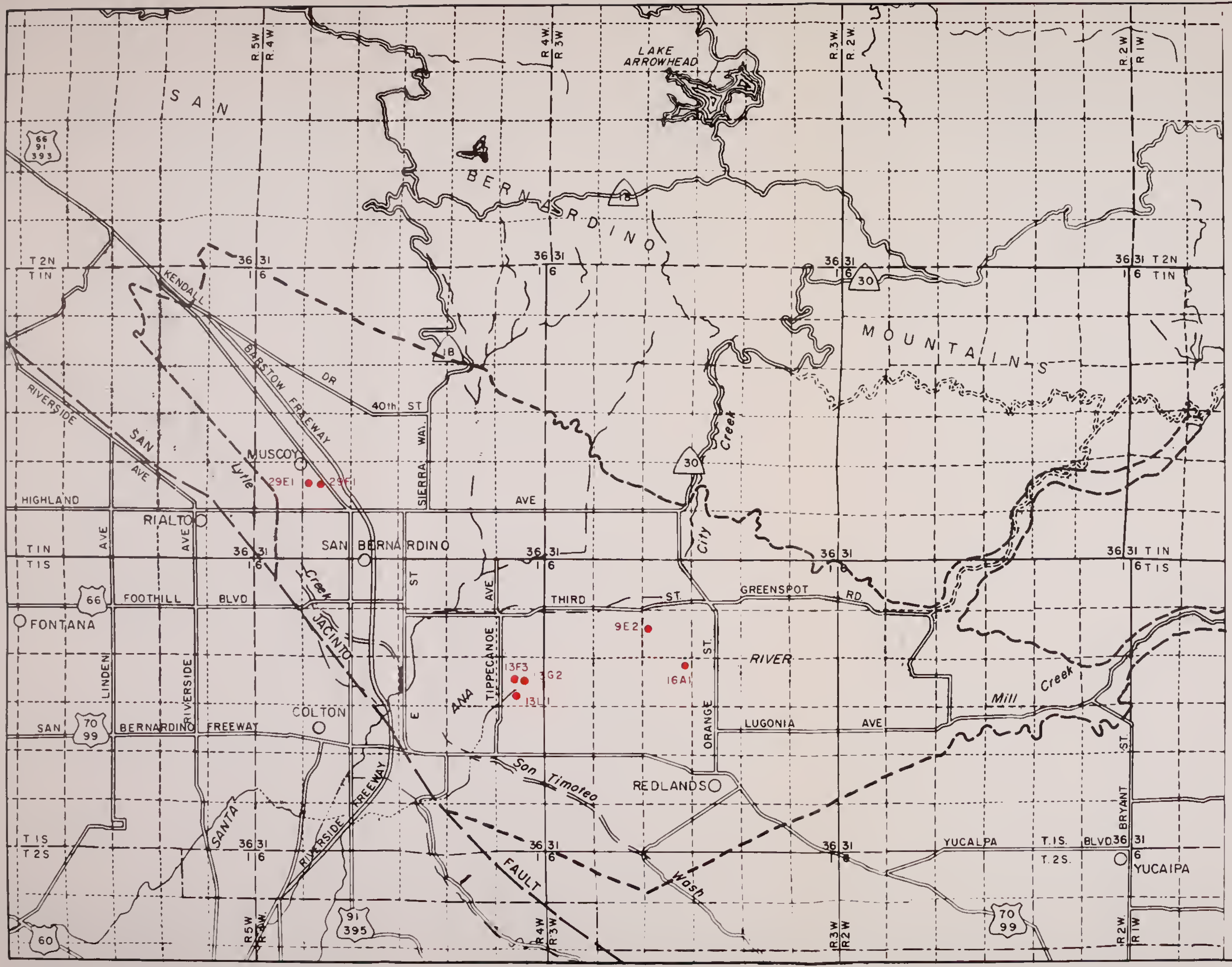

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SCALE OF MILES
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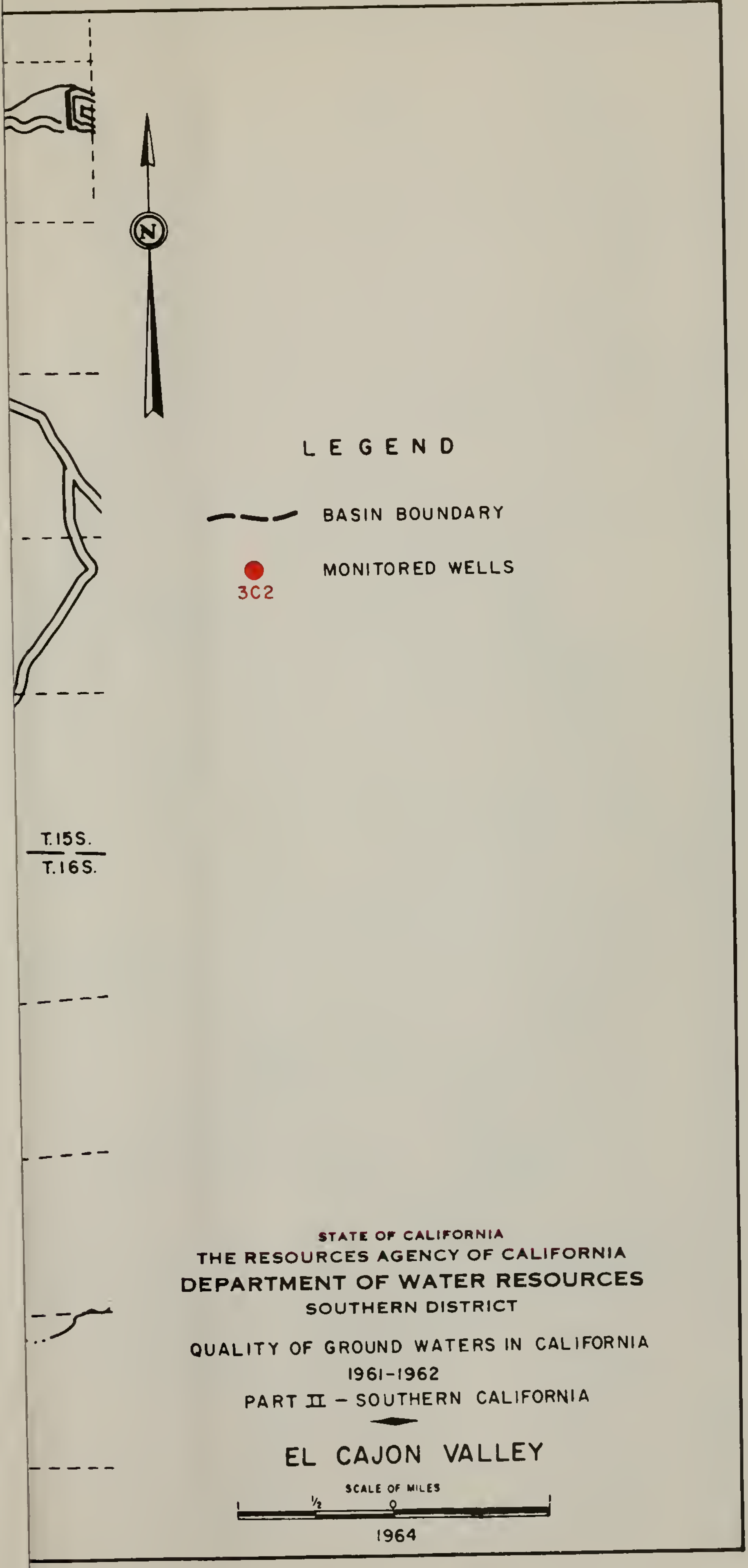

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QUALITY OF GROUND WATERS IN CALIFORNIA
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EL CAJON VALLEY

SCALE OF MILES
1 ½ 0 1

1964

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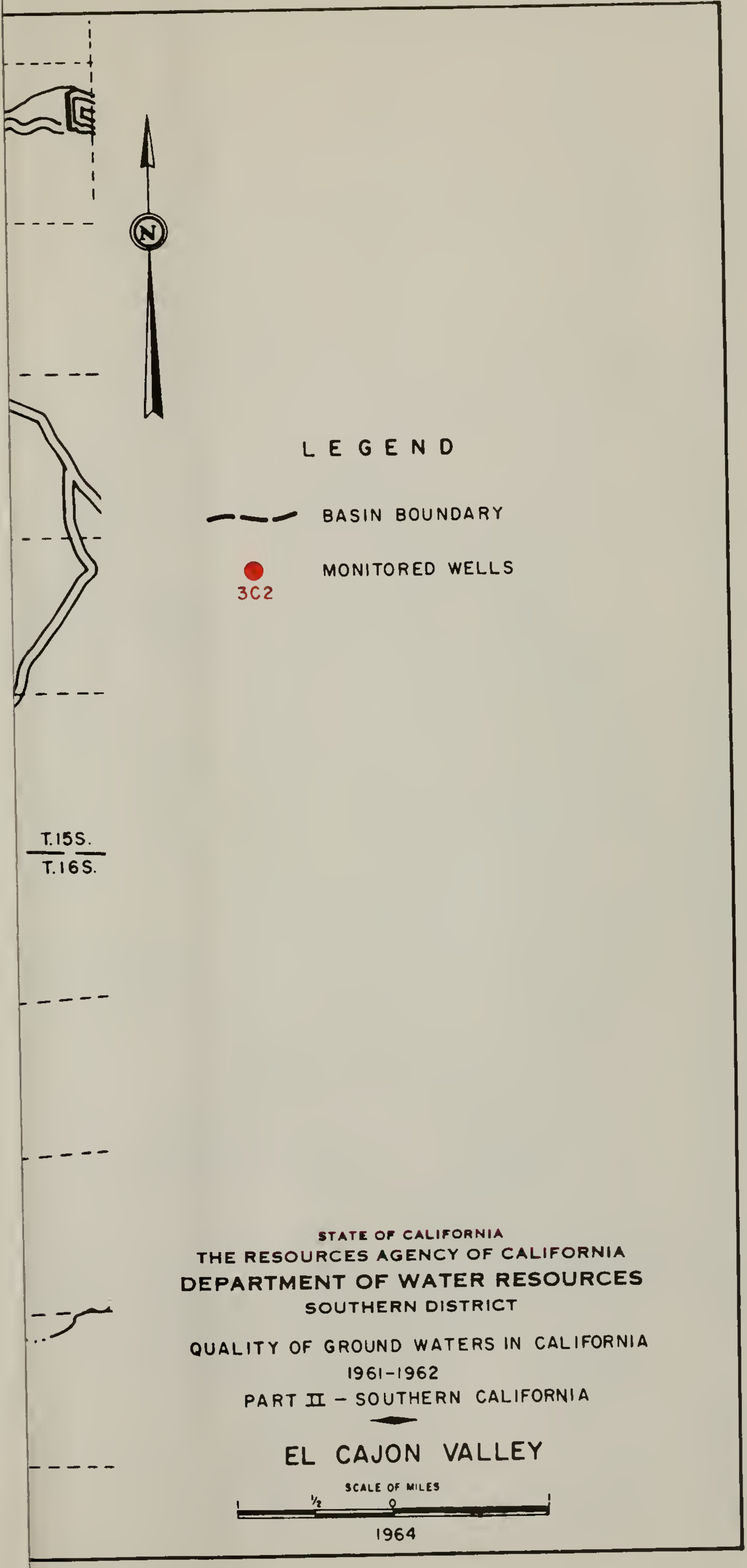
PLATE 14



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1961-1962
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EL CAJON VALLEY

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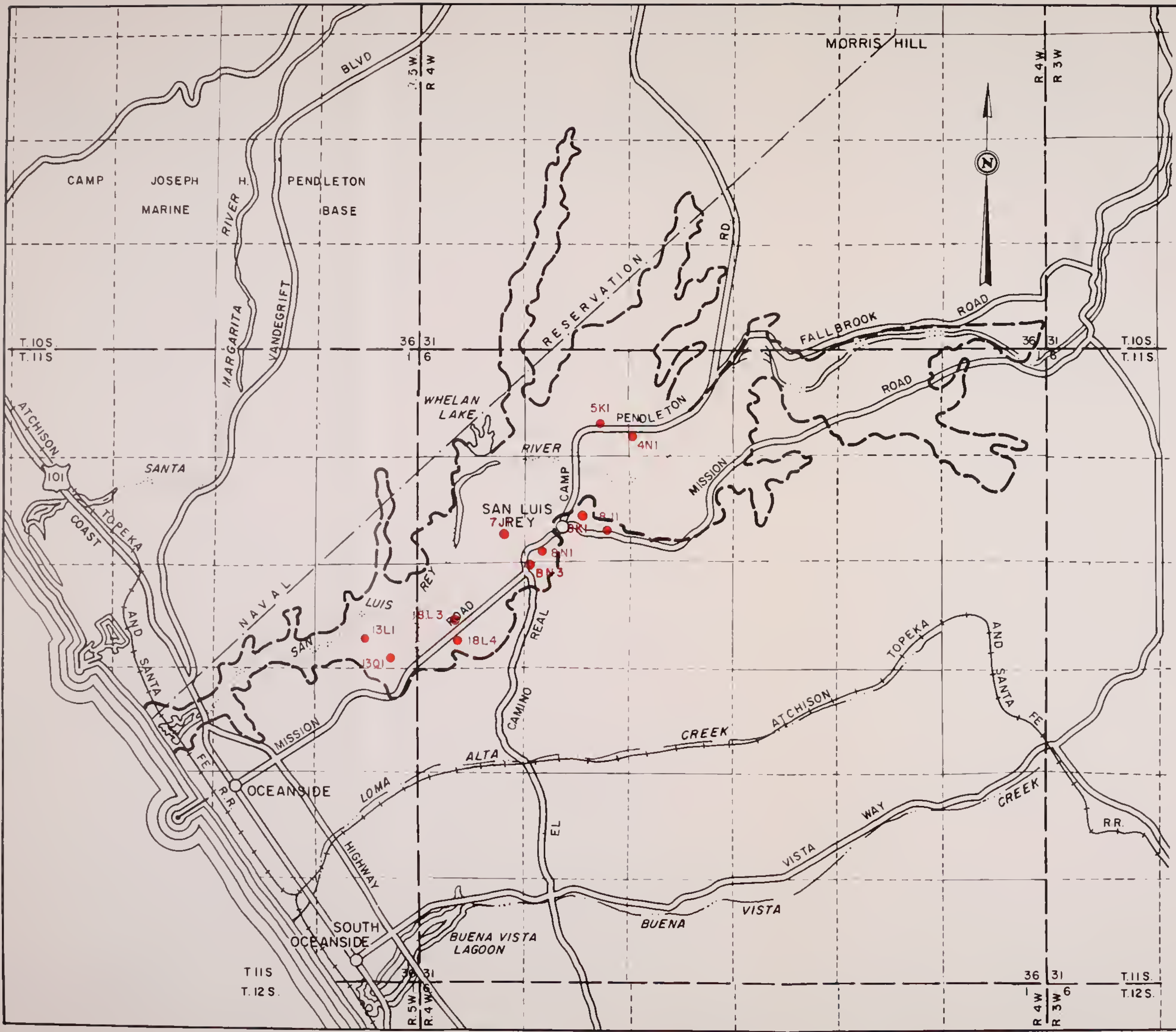
PLATE 13



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SCALE OF MILES
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SCALE OF MILES
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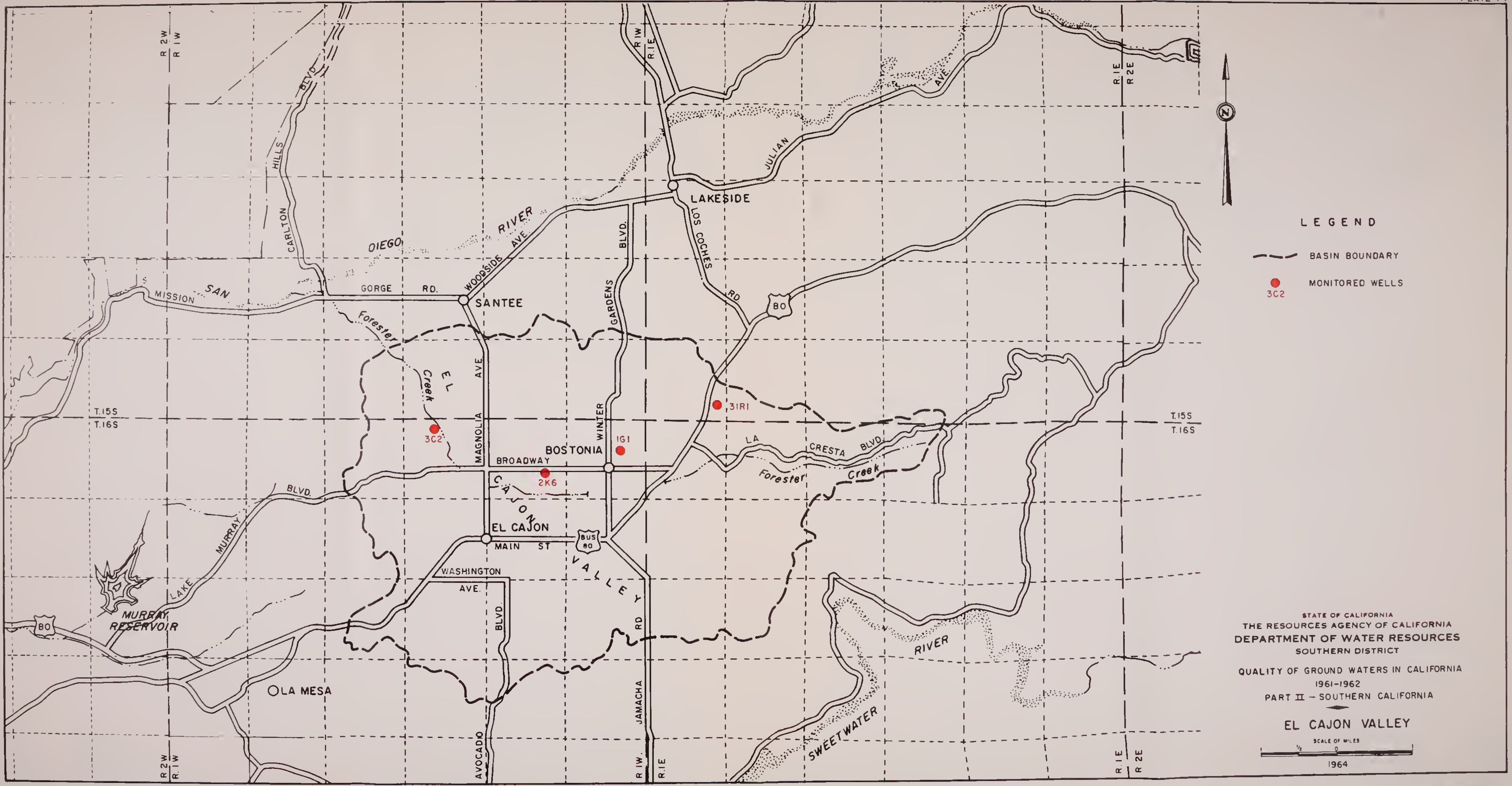

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SCALE OF MILES

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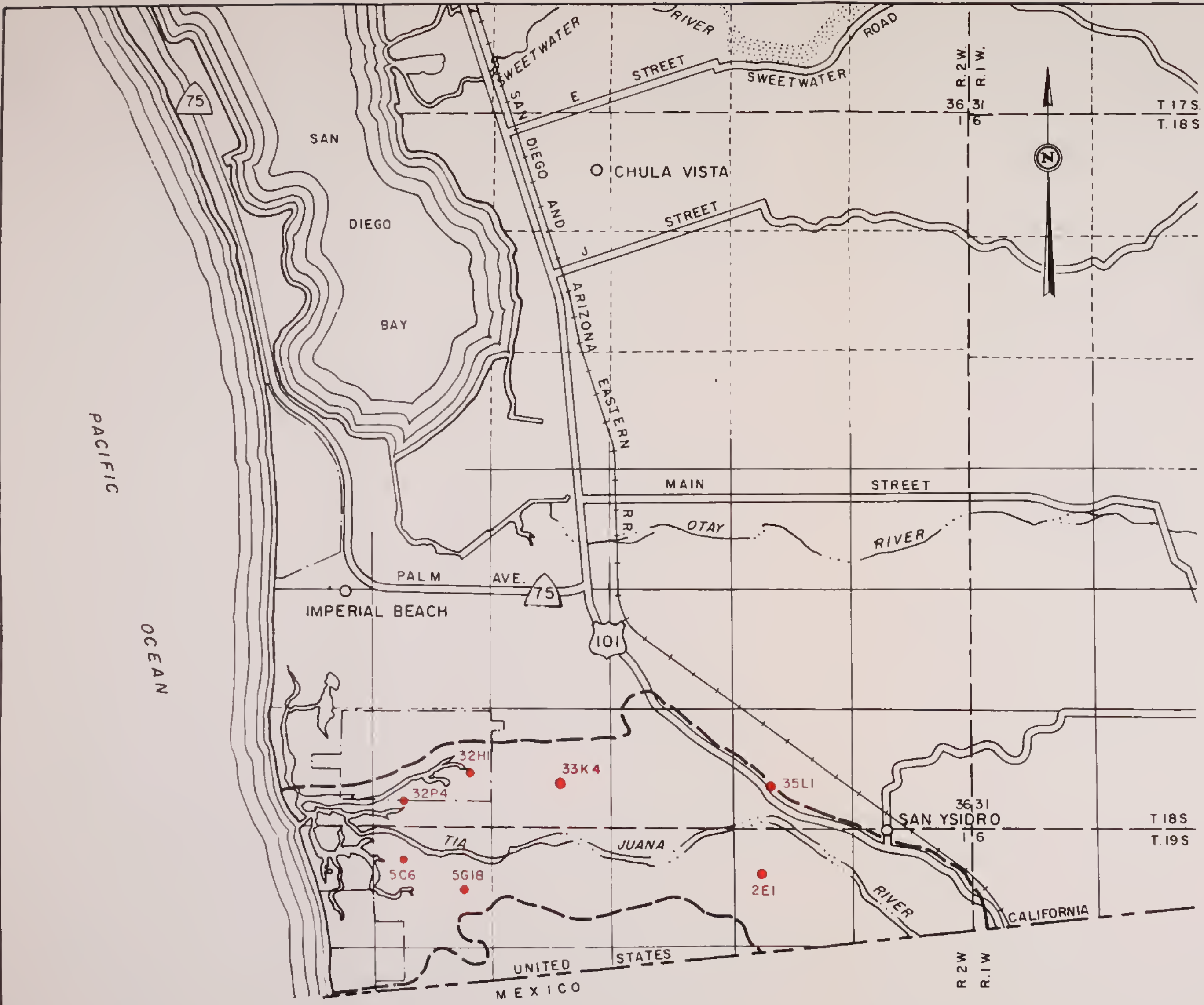

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